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MR. RICHARD P. ROTHWELL, Editor of the ENGINEERING AND MINING JOURNAL, returned from Europe on the 16th inst.

UNDER the signature of "Jersey Ore," the *Iron Age* of January 12th prints an interesting letter by a correspondent, on the question of the duty on iron ore. Both it and some editorial comments on it are crowded out this week by the press of other matter. We shall return to the subject in our next issue.

WE print elsewhere the full text of the bill to establish a Bureau of Mines and Mining, introduced by Mr. BELFORD, which we alluded to in a recent issue. All those who are interested in mining will concede the importance and value of the establishment of a Bureau of Mining. As they stand, the provisions of the bill are rather indefinite, and the mining interests of the country will look to a more elaborate presentation of the plan with interest.

THE encouraging and flattering reception which *Coal* has met induced its conductors earlier than they anticipated to enlarge its scope and increase its attractions. Their long experience as publishers has taught them that they can best secure and hold the support of their readers, not by the merits of one strong initial number, but by sustained effort and steady improvement. With that conviction, they began modestly, trusting that the appreciation of actual work would carry more weight than promises concerning what they would do in the future. The coal trade has responded so promptly that the publishers of *Coal* have decided to increase the size of the journal to eight pages of reading matter and to give it a handsome cover. Arrangements have now been completed to publish weekly portraits of gentlemen closely identified with the early history and the development of the coal trade of the different sections of the country, and we take pleasure in announcing that we shall in the next issue of *Coal* present a portrait of Mr. FRANKLIN B. GOWEN, President of the Philadelphia & Reading Railroad Company. The generous aid of many prominent in the great coal industry has already been secured, and we trust that we shall be able by conscientious work to make *Coal* the welcome friend of the trade.

A TRANSACTION of much significance has been completed recently in this city. The Municipal Gas-Light Company has bought the rights of the Metropolitan Fuel-Gas Company in the Strong and Lowe patents for this city. We have so fully and carefully followed the progress of the Strong and Lowe processes for the manufacture of fuel and illuminating-gas that we need not enter into details concerning them at this time. The Strong patents, and, for a certain divided half of the country, the Lowe patents, are owned by an organization called the American Gas Fuel and Light Company, which in the past sold its rights for the State of New York to the Strong Gas Light and Fuel Company, with the exception of the city of New York, the Strong and Lowe patents for which were held by the Metropolitan Fuel-Gas Company, whose rights have now passed into the hands of the Municipal Gas Company, which is and was making a high candle-power illuminating water-gas by the Tessié du Motay process. The price paid was 1500 shares of the stock of the Municipal Company, the holders of the Metropolitan being given three shares of the former for every forty shares of the latter. Last year, the Municipal Company paid twenty per cent dividends ; and as its stock is now worth from $195 to $200 a share, the actual price paid for the Strong and Lowe patents for the city of New York is between $290,000 and $300,000. The sale is as strong an indorsement of the value of the processes as it is possible to make. We are not informed whether the Municipal Gas Company proposes to adopt it as a whole or whether it intends to use such portions of it as it may consider an improvement upon its present methods.

PRAISE WELL BESTOWED.

In compliance with requests which have reached us from several quarters, we print the closing passages of the speech of Dr. R. W. RAYMOND at the dinner of Rensselaer Alumni, January 16th, 1882, in this city. The toast was "Sweethearts and Wives ;" and the tribute which we copy was received with instant and enthusiastic applause, the whole assembly spontaneously rising in acknowledgment. We trust that no violation of propriety will be found in thus permanently preserving the record of facts, which, although they belong in the sphere of private life, are widely, and ought to be still more widely, known.

"I think it can be said of us, in this our time, whatever may have been the subjection and insignificance of women in other days, or whatever it may be to-day in other lands, that no good man here and now does any good thing, but does it under the inspiration or with the help or for the sake of a woman or the memory of a woman. Our patriotism, our religion, our highest ideals of duty and heroism, do we not get them from our mothers, sisters, wives ? Our sweetest joy in success, our deepest satisfaction of ambition, is it not in their praise and pride for us ? Our most patient and strenuous labor, is it not to preserve and adorn the home where they sit enthroned ?

"The wise say, energy is one,
Howe'er disguised in outward mode—
The Heat that wanders from the sun
And changes garments on the road.

"I say, the powers of various name
That every human spirit move
To wake, to thrill, to glow, to flame,
Are but the changing modes of Love,

"Whose ray from heaven hath subtly wrought
In myriad ways, until at length
The boundless universe is fraught
With forms of beauty and of strength.

"What power unlocks the miser's clasp ?
The hands that erst with strong desires
Did fiercely gain and firmly grasp,
Now freely give, when Love requires.

"Ambition lifts its lofty head,
That from its dazzling crown of snow
All peace and glory may be shed
Upon Love's quiet vale below.

"Love sweetens labor, lightens care,
At morn, gives wing to Hope—at e'en,
Breathes out of Memory, like an air
Spice-laden, from a shore unseen.

"The wise say, force is not destroyed,
But still to-morrow, as to-day,
However hidden or employed,
Unwasting holds its steadfast way.

"I say that all-pervading Love,
Whatever seeming change betide,
Immortal lives, all change above,
Chief of the things that shall 'abide'!

"I can not forbear, gentlemen, the attempt, in closing, to put into words a vision that has risen before me as I have sat among you—a vision of real life, incarnating far more forcibly than my feeble rhymes, the strength, the versatility, the helpfulness, the victory of human love. It is the vision of a chamber in the neighboring city, where lies one of your number, a martyr to his own zeal and devotion as an engineer, whose monument, when (long hence, as we trust) he shall have passed away, will span the estuary beyond which to-morrow's sun is soon to rise—a memorial more stately than mausoleum or pyramid. And in this picture of the master-workman, directing from his bed of pain the master-work, I see another figure—a queen of beauty and of fashion, become a servant for love's sake; a true help-meet, furnishing swift feet and skillful hands and quick brain and strong heart to reinforce the weakness and the weariness that could not, unassisted, fully execute the plans they form, but that stand, with this assistance, almost as in the vigor of health. Gentlemen, I know that the name of a woman should not be lightly spoken in a public place; I am aware that such speech is specially audacious from the mouth of a stranger; but I believe you will acquit me of any lack of delicacy or of reverence when I utter, what lies at this moment half-articulate upon all your lips, the name of Mrs. WASHINGTON ROEBLING!"

To which the ENGINEERING AND MINING JOURNAL, in common with all who heard the words, and all who will see them, heartily says, Amen!

*

REVIEW OF THE COAL TRADE OF THE UNITED STATES FOR THE YEAR 1881.

Anthracite.

Prosperity of all branches of trade, increase of population, extension of railroads, and continued introduction to new consumers made a demand for anthracite coal in 1881 that was without precedent. Prices were not as high as they had been in many previous years, but they were better than they have been for several years past, and, with moderate cost of production, were quite remunerative.

The average circular price of coal in 1881 was but 2 cents higher than in 1880. It is probable, however, that the actual average price received was fully 25 cents per ton higher. The shipments were in round figures 5,000,000 tons greater in 1881 than in 1880. So large and satisfactory a business resulted in good profits to those companies which had been able to weather the storm that only lost its force in 1879, and greatly to improve the condition of the others that had been pronounced wrecks. A large portion of the increase of business last year was due to the severity of the winter of 1880–81, which caused a very large consumption of coal at all points and a great scarcity at many. The experience of the last winter has taught dealers that it is unsafe to carry stocks only sufficient for a moderate winter, and they ordered with greater freedom for this winter's supply. The demand for iron-making has been large, while all classes of manufacturing have been prosperous and have been heavy consumers of coal. A very considerable and constantly growing trade comes from the West, and in fact all distant portions of the country, for household use. Wherever anthracite coal is tried in suitable stoves, and can be secured at reasonable and, in some cases, even not too extravagant prices, it will continue to be accepted as the domestic fuel. Its introduction is constantly going on, and the demand is so great now that the coal can not be delivered in sufficient quantity at prices which will warrant its consumption to a greater extent. A few years ago, the shipment of anthracite began to be made to the West, in freight-cars that were returning empty, at rates of transportation that enabled the coal to be marketed. It was found that the actual cost of returning the cars loaded was but slightly greater than the cost of returning them empty, and that, although coal could not afford to pay first-class rates of freight, the revenue to be derived from carrying it was large, and, as compared with the old condition of affairs, a considerable profit was afforded. Although we say that coal does not pay high rates of freight, yet it has been considered one of the best freights obtainable during the past year, having returned more per ton than was charged for carrying grain from the West to the East under greater expenses and risks. England's maritime supremacy is largely indebted to coal carried where vessels would have had to go empty or in ballast, and it is to coal carried at low but remunerative tolls that the great West will be largely indebted for its development. The movement of grain will probably constantly increase; but it will be found that the movement of anthracite coal, as a return freight, will keep almost equal pace with it. There is no other article so desirable to carry as coal, or so cheaply carried. A train of cars is run on a side-track and in an hour is loaded. An engine is attached, and with a sufficient number of brakemen, the coal reaches its destination without requiring further attention than that of the weigh-master, who can weigh thousands of tons a day. At its destination, it is run on to a side-track once more, with no just reason for delay in unloading. The trunk line managers are fully aware of the value of this trade, and are making great efforts to secure and handle it. It will not be many years before the statistics of coal carried into the principal Western cities will be scanned with as much interest as the statistics of grain carried out of them.

Anthracite coal, although well adapted for iron-making and steam generating, is apparently destined to become almost exclusively a house fuel. Its cleanliness alone will make it more economical than the cheaper bituminous coals, to those who are so fortunate as to be able to furnish their houses with bright and valuable carpets, furniture, etc. When we realize the appreciation in which this coal is held as a domestic fuel, and the extent to which it is now consumed as such, it becomes evident that, with a continued growth of population and wealth and increased economies in transportation, the maximum yearly production will be attained in a comparatively short space of time. In 1860, this country had a population of thirty-five millions and a production of 8,513,123 tons of anthracite coal. In 1870, the population was forty millions and the production of anthracite coal 17,819,700 tons. In 1881, the population was probably 51,500,000, while the production of anthracite coal was in round figures 30,000,000 tons. At a very much smaller rate of increase than in the past, the anthracite coal production will reach the enormous aggregate of 50,000,000 tons per annum by the beginning of the twentieth century. As compared with what has been supposed to be the life of the anthracite coal supply, that is but a very short time away. Unless, therefore, there is a revolution in the mode of heating cities and towns, all the anthracite coal that should with wisdom be produced will be required for household uses.

Bituminous coal exists in quantities almost without limit in this country. It is much more cheaply mined and prepared for market. It is a better steam coal, and, when converted into coke, it is a better fuel for iron-making, foundries, etc. Bituminous coal being in such great abundance and so easily mined, there will be great competition for the steam iron, and similar trades, and it will be found poor economy to bring anthracite into the competition. That it will make less and less of a battle of it each year, is already evident.

The labor question was not agitated, although the operators were uneasy during a great portion of the year, fearing that strikes would occur. The prospects for 1882 favor an uprising of the miners, who have been very quiet for several years. During the last six months of 1881, the miners received steady employment, and although they are a very improvident body, they are probably in better position for maintaining their demands than they have been for a long time past. The Schuylkill and Lehigh regions are paying their men on the basis system, and feel easy; but there is no knowing how long the men will be satisfied with the present basis. The most likely places for serious trouble are in the Wyoming and Lackawanna districts, where the men are paid fixed wages. With steady employment, these men are well paid; but the miner is a good bit like the operator—he will take all he can get, and there is a feeling that the miners believe they can get more if they will try for it, and that they are going to do so.

During the past year, a great deal of the large sizes of coal was crushed for the purpose of increasing the production of stove and chestnut sizes.

Bituminous coal has already absorbed a great deal of the steam trade, and if it becomes an established fact that anthracite for long periods is to rule as high in price as at present, a great deal more of the steam trade will be lost to it. A great many manufacturers would find bituminous coal very much more economical, with proper appliances for burning it, and the difference in value would in many cases soon pay for the necessary changes.

Although some concessions from circular rates of coal were offered almost all the time during the year, prices were better maintained than we have ever known them. There is a greediness to sell coal that makes it almost impossible to maintain full circular rates all through the market.

It is claimed that a very much larger production than that of 1881 could not have been moved, owing to a lack of transportation. During the last half of 1881, the shipments were in round figures 16,000,000 tons, and at no time was there a superabundance of cars or vessels. During the first six months of the year, the shipments were about 12,500,000 tons. A larger movement than this might have been accomplished if the trade had warranted it, but it could not have been as large as during the last half of the year. It is estimated that the shipments for 1882 will equal 30,000,000 tons; if so, this will probably try the carrying capacity very much. A constant increase of rolling stock is making by the railroads; but the demand is so great from all quarters that the roads upon which the coal trade is dependent for transportation are making but small progress in this direction. As to vessels, the requirements of other trades are absorbing a great many, and it is said by those conversant with the situation that new vessels are not building as rapidly as old ones wear out or are wrecked. Iron steamers are rapidly taking the place of modern sailing vessels, especially for journeys of moderate length. It will not be many years before the greater portion of the carrying of coal coastwise will have to be done by steam colliers.

The programme of the companies for the regulation of the trade in 1881 was apparently to apply remedies to correct evils, but not to prevent them. No regular plan was adopted at the beginning of the season; but when the markets became overstocked and prices depressed, a curtailment of production was applied. Had the policy been to anticipate over-production, the market would have been much more regular, prices would have averaged higher, and fully as much if not more coal would have been sold. There was a spirit of indecision pervading the actions of the managers during the whole year. It destroyed the confidence of buyers and made them withdraw from the market at the most critical times, while at the same time it destroyed the confidence between the companies and made them more willing to make concessions. An examination of the statistics of shipments for the first and second halves of the year shows that during the former, with practically a three days' per week curtailment, the shipments were about three quarters as great as during the latter half, when they worked six days per week. In fact, it is well known that some of the companies only followed the letter of the agreement relative to curtailment, and greatly abused the spirit of it. They used all extraordinary means to make the three days a week-work produce as much coal as possible, instead of following in the regular path and producing but about as much as should be produced regularly in the time set apart for working. This system is increasing the productive capacity of the several districts, while during the last half of the year there were not men enough to man the existing ones. This will result in a competition for labor and higher wages, while ultimately there will be an over-production of coal at an increased cost of producing. There will be efforts to change the plan for regulating the trade in 1882, but it will probably be about the same. If so, let the policy be much more firmly followed. With a feeling established among buyers that it is the firm intention of the companies to keep the production close to the requirements of the market and to maintain prices, say on a slightly advancing scale, purchases will be made liberally through the whole season rather than trust to the uncertainties of freights during the fall months.

January.—The year opened with a stock of only 500,273 tons in the hands of the companies, and an extraordinarily large demand caused by very severe weather. Before the end of the month, many dealers and consumers who were in the habit of putting in full supplies before the close of navigation found that their stocks were becoming exhausted, and they were compelled to order shipments by rail. The demand from the West and South was beyond the ability of the railroads to furnish transportation. Water routes were frozen up, and steam power had to be substituted in many instances. Prices strengthened, and the outlook was most favorable. In December, 1880, an arrangement was made to work but three days in the week during the remainder of the month, and up to February 1st. The demand was so great that during the third week of this month the companies were compelled to work full time, to meet the requirements of consumers. It may be stated, however, that the severity of the weather was so great as to bring about an unexpected curtailment, the mines being unable to produce and the railroads to carry the usual quantity of coal. There was at the same time great trouble in moving the coal from the shipping ports, owing to the accumulation of ice. The shipments this month were 1,672,645 tons. Stocks were reduced 82,387 tons, and were, at the end of the month, 417,885 tons.

February.—This month opened with very cold weather and snowstorms, so that the consumption of coal was very large, and the inability to move it great, owing to the railroads being blocked with snow and the harbor almost blocked with ice. Early in the month, however, the weather became milder, and new orders became less abundant, although the companies had orders more than sufficient to take all their coal, and prices were very firm. During the beginning of the month, coal was so scarce in this city that the retailers were enabled to advance their prices 50 cents a ton, and the demand was so great that the companies took no action relative to curtailing production. However, the severe weather of the early part of the month and the crippled condition of the motive power of the coal-carrying roads acted as a strong curtailing influence. The shipments for the month amounted to 2,118,174 tons, making an excess of 729,938 tons for the two months of the year, as compared with the corresponding months of 1880. The stocks were reduced by 22,599 tons to the very small aggregate of 395,286 tons, or but little more than half a week's production.

March.—This month opened with prices slightly lower, and the demand so much reduced that a reduction of output was considered necessary. No action was taken, however, until the 17th, when it was resolved to work but three days a week during the following fortnight. Buyers were making hand-to-mouth purchases in expectation of lower prices and lower rates of freight. The line and Western trade was so great that demoralization was prevented in this market. The delay in action on the part of the companies began to destroy confidence in their settling upon any plan for regulating trade, and as a consequence orders began to be canceled on one pretext or another. At the meeting at which it was decided to curtail production, it was the predominant sentiment that a reduction of prices to induce spring purchases was unnecessary and unwise; but shortly afterward, the Pennsylvania Coal Company issued a circular making a reduction, and all the other companies followed the example by issuing circulars showing a reduction of 10@25 cents in prices. By the end of the month, both demand and supply were better. The shipments of coal this month amounted to 2,225,842 tons, and the total shipments from January 1st exceeded those for the first three months of the previous year by 1,208,903 tons. Stocks aggregated 563,063 tons, an increase during the month of 167,777 tons.

April.—A curtailment of production by working but three days during each of the first three weeks produced a steady improvement; but it was characteristic of the managers that they could not leave well enough alone, but must agree to full-time work during the fourth week, with the result of weakening prices once more. On the 15th, the Western Association established prices 55@60 cents per ton lower than were current immediately previous to its action. The shipments were 1,945,855 tons, making an increase for the first four months of this year, as compared with the like period of 1880, of 1,138,118 tons. The stocks were 528,198 tons, a decrease of 34,865 tons, as compared with the stocks at the end of the previous month.

May.—This month furnishes but little worth recording. During the first week, the mines were worked each day, while during the remaining weeks they produced but three days each week. The production was moved at fairly steady prices, which were not in all cases equal to circular rates. The free-burning coals were a little difficult to sell. The shipments were 2,086,743 tons. For the first five months of the year, they exceeded those for the corresponding period of 1880 by 1,573,780 tons. The stocks at the end of the month were 562,719 tons, having increased 34,521 tons.

June.—Some of the companies were so well supplied with orders that they would not consent to more than six days' curtailment. The larger production all around gave trouble to those whose order-books were not well covered, and prices, as a consequence, were a shade weak. The business, however, was a remarkably good one for the season of the year. The month, and the first half of the year, closed with a scarcity of vessels, and indications of higher prices for coal and freights in the early future. The shipments for the month were 2,418,238 tons; for the first six months, 12,467,496 tons; for the first six months of 1880, 10,312,120 tons; an increase for the first six months of 1881 of 2,155,376 tons. Stocks, at the end of the month, were 598,565 tons, an increase of 35,846 tons for the month, and 180,680 tons for the six months.

July.—During the first half of July, there was a curtailment of three days' work (the last for the year), and prices were steady or improving. During the last half, however, too much coal was mined, and prices were weaker. Vessels became scarce and freights higher. The shipments were 2,570,100 tons, making the total production 3,090,680 tons greater than for the first seven months of 1880. Stocks aggregated 674,716 tons, an increase of 76,151 tons for the month.

August.—This was a remarkable month. The production was very large and it was thought that coal was accumulating, but at the end of the month it was found that the coal was all taken and stocks slightly reduced, a misapprehension which caused an irregularity of prices. The demand on the line was very great, while the Western demand was beyond the ability of the companies to secure the necessary transportation to meet it. The movement to the East was greater, owing to an improved supply of vessels; but as this was still small, the rates of freight were high and the movement not so large as it might otherwise have been. The shipments reached the enormous total of 2,733,548 tons, making an increase from January 1st, as compared with the like period of the previous year, of 3,928,712 tons. Stocks at the end of the month aggregated 652,943 tons, a decrease of 21,773 tons.

September.—The production was somewhat curtailed by a scarcity of labor and water at the mines, while the movement of coal was not as great as it might have been, owing to a scarcity of vessels at the seaboard and of cars for meeting the Western demand. Prices were a little irregular, which was largely due to the fact that the Delaware & Hudson Canal Company offered what is called "off-colored" coal at a concession. During this month, President Garfield died, and after the long period of suspense business began to improve. The Western Association advanced the prices of egg, stove, and chestnut 25 cents per ton. The shipments aggregated but 2,588,219 tons, reducing the increase over 1880 to 3,677,454 tons. The stocks at the end of the month aggregated 613,958 tons, a decrease of 38,985 tons.

October.—There was no curtailment excepting that which came from a scarcity of water at the mines and a lack of transportation facilities. The demand was constantly ahead of the supply, and prices were well maintained. In fact, for certain sizes and qualities of coal afloat, even more than circular prices were paid. Vessels were in fair supply, but the supply of cars for Western shipment was so meager that coal was shipped to Buffalo via the Erie Canal. The shipments amounted to 2,686,054 tons, while for ten months, as compared with the like period of 1880, there

was an increase of 3,981,698 tons. The stocks at the end of the month amounted to but 474,904 tons—a reduction of 139,054 tons.

November.—November opened with current prces 15@25 cents a ton higher than circular rates for stove and chestnut sizes of coal. All through the month, the demand was fully equal to the supply, although some sizes were said to have accumulated to a small extent. Old orders were mostly absorbing all the coal produced, while new orders were not so plenty. Vessels were in moderate supply and freights firmer. The mines worked full time. The shipments amounted to 2,727,871 tons. The stocks at the end of the month aggregated 392,315 tons, a decrease of 82,589 tons.

December.—The demand for stove and chestnut sizes continued to be very great during all of this month, although, in anticipation of a slackening in the demand, these sizes were offered at a concession for future delivery. The larger sizes were accumulating with some of the companies, and were weak. Vessels were in fair supply and freights reasonable. There was some cold weather, which brought about a fair consumption; but at the close of the year, the winter had been an exceedingly mild one, and it became evident that the falling off in consumption must tell on the business of 1882. The demand at the end of this month was so small as to make the subject of an early curtailment of production one for serious consideration. So ends one of the most remarkable years in the anthracite coal trade of this country. The shipments for this month amounted to 2,724,727 tons, making a total production for the year of 28,500,016 tons, and an increase over 1880 of 5,062,774 tons. The stocks at the end of this month aggregated 497,024 tons, an increase of 104,709 tons for the month. The stocks at the beginning of the year were 500,273 tons, showing a decrease for twelve months of 3249 tons.

LETTERS FROM THE WEST.—V.

Special Correspondence of the Engineering and Mining Journal.

SPENCEVILLE COPPER-WORKS.

Grass Valley and Nevada City lie well up on the Pacific slope of the Sierra Nevada in the zone of fine timber. A drive of twenty miles toward the west carries you down, out of the pine, through the tumble-down hamlet of Rough and Ready, from end to end of the beautiful oak glades of the Penn Valley, to the last range of the foot-hills, beyond which stretches to the sea the fertile plain of the Sacramento. And the drive brings you to the scene of another industry—the only large establishment and metallurgical works of its kind on this continent—to the copper mines and copper reduction-works of Spenceville.

Some years ago, great expectations were built, much money was spent, and considerable work done on the copper deposits of California in the northeastern counties. Some, especially the Union mine, yielded a very large amount of ore. But owing to the decline in the price of copper and disappointment in the realization of unreasonable hopes and to certain irregularities in the deposits, systematic mining has been everywhere abandoned, except at the mines of the San Francisco Copper Milling and Mining Company, at Spenceville. Mr. Price, of San Francisco, who came to California during the short-lived activity of copper mining as purchasing agent of an English copper house, is convinced that many of the properties then too hastily abandoned will be reopened and prove valuable mines.

It would be difficult from the work done to classify the deposit at Spenceville as either a bed or a vein. It is irregular in size, varying from eight feet to thirty feet in width, and where opened its strike does not appear to be uniform. In all probability, however, it will prove to belong to the order of lenticular-shaped beds which, in Spain and elsewhere, produce all the pyrites of commerce. Very large quantities of ore during the intermittent periods of activity in the nineteen years' life of the mine were extracted, chiefly from an open cut and from some shallow workings below the quarry, which, however, had caved in prior to my visit. A shaft is now sinking, with the intention of prosecuting from it regular mining, which, I doubt not, will redound to the credit of the mine.

The following analyses are of samples taken to represent as nearly as possible averages:

	May, 1880.	Price's. May, 1880.	Bartley & Campbell. May, 1880.
Sulphur	44·64	45·25	48·11
Iron	43·00	43·74	41·80
Zinc	5·66	.....	.....
Copper	3·60	4·52	5·44
Silica	3·10	6·22	2·60

Average of the three analyses gives:

Sulphur	46·00
Iron	42·84
Copper	4·52

The ore is a fine-grained pyrites, with a grayish color; admirably suited by its high sulphur and low copper contents as well as by its physical properties for kiln-roasting and for yielding a strong gas to sulphuric acid chambers. As yet the demand for acid acid on the West coast has been so small as not to encourage its local manufacture; but acid and chemical works are now erecting near San Francisco. The intention is to use at first Japanese brimstone; but once the preliminary difficulties incidental to a new industry have been overcome, this pyrites will doubtless supplant the brimstone, and the same series of operations for the recovery of the copper and the conversion of the iron into marketable condition will be followed as has for years been employed in Great Britain to utilize all the ingredients of the Spanish pyrites. Another possible use of this very basic ore, were it only more conveniently situated and were fuel somewhat cheaper, would be to smelt with it the siliceous gold and silver ores of Grass Valley and Nevada City, whereby all their precious metals, without loss, would be concentrated into a copper matte.

At present, the method, long used at Agordo, in Italy, for recovering the copper from a similar ore, namely, by slow roasting and leaching out the sulphate, is practiced here; but is so imperfectly carried out in some of its details that a very heavy loss of copper is sustained.

At Agordo, the ore used to be broken into lumps, heap-roasted, and leached with water. The sulphates in the shell were thus extracted, while the kernels, in which the larger proportion of the copper became concentrated during the roast, were separated by sifting, and smelted. The loss of copper in this operation reached 40 per cent. Subsequently it was found that a much more perfect sulphatization could be obtained by crushing the ore and cementing it into bricks by moistening with the mother liquors from the copperas tanks and pressure—a procedure that could be profitably followed in Italy with wages at 20 cents, but not in California.*

HEAP-ROASTING.

At Spenceville, the ore is hand-broken by Chinamen into lumps of very unequal size—a defect which should be remedied, even at the expense of making a larger percentage of fines, by the use of a rock-breaker. From 180 to 200 tons of ore are piled around a chimney and flues of red brick loosely built. The smaller lumps are placed in the core of the heap, the larger are thrown upon them, and 40 tons of tank residues strewn over the surface, to exclude excess of air. The foundation is of brushwood, and brushwood is distributed through the body of the pile, and 500 pounds of salt are mixed as evenly as possible with the ore. There were fifty piles burning and in course of construction or demolition when I made my visit—forty under cover, ten in the open air. The ore immediately around the chimney and flues is well burnt, and the lumps, even though faultily large, which compose the shell, are calcined to the core; but the bulk of the ore, owing to fines and lumps being thrown in together, and therefore owing to insufficiency of air, is half-fused and very imperfectly roasted. The percentage of copper recovered is consequently about the same as that saved at Agordo, when following the old plan of working, which has, as explained, been replaced there by a less wasteful method.

A well-roasted lump yields me:

Cupric sulphate	2·10 per cent.
Ferric sulphate	2·58 "
Ferrous sulphate	1·04 "

The piles burn from three to four months, and are generally still alight when broken down and sorted. The imperfectly roasted ore is returned to a fresh roast-heap; the rest is trammed to the

LEACH-VATS.

These are 40 in number, rectangular, with vertical sides 4 feet × 6 feet and 4 feet deep, built of four-inch pine. Over each vat is suspended a hopper, in which the charge of three barrows, about two tons, is stored. The vats are built on an inclined tight floor, and besides the apertures beneath the false bottoms for drawing off the copper liquors, each vat is provided with a man-hole and door, through which the exhausted residues can be speedily discharged.

Half the vats are filled daily in the afternoon. Steam is injected beneath the false bottom at seven P.M. The liquors lie on the ore till seven A.M., when they are tapped off, and have a specific gravity of 22° B. Fresh water is added, heated as before, and drawn off the following morning with a density of 7° B. The operations of filling, leaching, and discharging occupy therefore forty-eight hours.

The tank residues are thrown on very large dumps, built on an asphalt floor. On them the ore undergoes further oxidization, and yields its copper to water sprinkled over their surface and collected in reservoirs dug out of their summit. There flow continuously from the base of these small streams of copper liquors of a density of 6° B., which are received into large settling-tanks previous to

PRECIPITATION,

and then conducted through troughs 600 feet long by 2 feet, and 2 feet deep, filled with scrap-iron. The head of this system of troughs is cleaned out every few days, the tail only after many months. These troughs yield a 60 per cent copper cement.

The richer copper liquors which have been drawn from the tanks are kept apart from those from the dump-heaps. They are also collected in settling-tanks and thence pumped into four large barrels mounted horizontally on friction-rollers, to which an almost insensibly slow revolving motion can be given. These barrels are 18 feet long by 6 feet 6 inches outside diameter. They are built of six-inch square staves, with heads of four-inch Oregon pine, and are lined with two-inch planks so fitted as to be easily replaced, as they wear under the grinding action of the scrap-iron. These barrels are refilled six times daily, complete precipitation of the copper being effected in less than four hours. Each barrel is provided with two safety-valves, inserted in the heads, which open automatically, to allow of the escape of steam and gas on reaching the summit of each revolution.

The cement is discharged from the barrels on to screens, which arrest any lumps of scrap-iron which may escape with it, and is leached from iron liquors in layers two feet deep, in tanks 10 feet by 3 feet, with water slightly acidulated with sulphuric acid. The precipitation in revolving tanks has long been effected at Skofia, in Austria, and is practiced in England whenever iron sponge is used as a precipitant. The product thus obtained in Spenceville is exceptionally rich, averaging from 80 per cent to 85 per cent in copper, and being remarkably free from basic sulphates, which vitiate so detrimentally the cement made from solutions carrying much ferric sulphate when precipitation is slowly effected in the air. To avoid this evil, at Agordo, Signor Zoppi, in 1874, built a furnace with a shelved stack, in which he brings the liquors under the reducing action of sulphurous acid, and thus converts the ferric into ferrous sulphate.*

The output of the Spenceville Works is 35 tons monthly of 80 per cent cement from 1200 tons of ore, or 2·1 per cent of copper per ton treated, or 46 per cent of the copper in the ore.

* *Notes of a Metallurgical Journey in Europe, by John A. Church.* New York, 1875. Republished from the ENGINEERING AND MINING JOURNAL.

† *Annales des Mines*, 1876.

Most of this cement is used up for the manufacture of blue vitriol in Nevada. A small surplus occasionally comes to this coast for sale.

As at every other establishment in the West where the business of mining is conducted at the mine only, and not at a center of stock speculation, so here, every information was gladly and fully accorded, and free access given to the works by the courtesy of Mr. John E. Ellis, the superintendent. J. D., JR.

MINING AS AN INVESTMENT.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: For the past three years, a great deal has been written about "Mining a legitimate business" and "Mining as an investment," and other kindred topics, the object of all such articles being to reassure the general public mind regarding a business formerly associated through bitter experiences with loss and uncertainty. Many so-called mining papers have sprung into existence with the general revival of interest following the opening of new mining districts and large productions of a number of now well-known mines. These mining papers and the general press have been so industrious in reporting rich strikes and large products, and in informing the public that mining was immensely profitable and could by common business sense be made as safe as other industries, that there has been for some time past a wonderful rush into mining ventures. The general prosperity of the country has rendered this possible; and after the late large outlay of capital in purchasing and working mines, this is a good time to take a glance backward and forward at results.

There are several different ways of estimating the results of investments in mining, and the published tables of dividends and assessments for the year 1881 may be taken to illustrate this. In the table of dividends given in the ENGINEERING AND MINING JOURNAL of December 31st, 1881, there are 69 mines, covering the best-known paying mines in the country. If we take them as representative of the profitable investments of the public in mines, their returns should give a fair idea of what the industry is at its best. It is not necessary to consider the variations in the market prices of the stock; these are so great that they make a business of themselves. But, as some basis of calculation is needed, and brokers generally claim that mining stocks are now selling low, we will assume that investment is made at market prices at the end of 1881. If an investment is made without view to future rises in value of stock, the point to be considered is what interest one will receive in dividends; and if we assume that the mines mentioned in the table of dividends will yield equally well in 1882, our estimate of them as an investment will be based on their average interest at present selling price. Taking 44 of the best known mines, including both copper and precious metal producers, and multiplying their capital stock in shares by present selling price, we find their present price $74,385,000. This year, if they produce as well as during 1881, the dividends will be $12,565,400, or a return of 16·8 per cent on the investment. But these 44 mines consist partly of reliable mines whose product is pretty certain, and partly of mines whose product for 1882 is very uncertain, and partly of mines whose product for 1882 will in all probability be much less than for 1881. A separation therefore into groups will be only just. There are included in the 44 mines 4 copper properties selling at $34,256,500, with dividends amounting to $6,488,683, which would yield interest at the rate of 9·6 per cent.

Of the 40 precious metal mines, we can select only 14 which, from past record and knowledge open to the public, may be expected reasonably to produce as largely in 1882 as they did in the year past. These mines at the end of the year were selling at $34,256,500, paying dividends of $6,488,683, or interest of 18·9 per cent.

The remaining 26 mines are uncertain. Some may produce more than last year, many will produce less; their product depends on developments of which the public has little chance to form a just estimate. They are selling for $12,813,500, with dividends paid of $3,411,718, or interest at the rate of 26·6 per cent. As nine out of the twenty-six may be, from all present indications, considered as very unlikely to pay this year as last, they may be separated from the simply uncertain ones; and their present low selling price is sufficient warrant for doubting them. These selected nine, most of them but too well known to the investing public, are selling for $1,962,000, and paid dividends of $1,459,375, or 74·3 per cent. Deducting these nine from the twenty-six above mentioned, we have seventeen mines whose product for 1881 is uncertain so far as the public can hope to find out. These seventeen are selling at $10,851,500, and paid $1,952,343, or 17·9 per cent interest.

What is the inquiring investor to conclude from these results? The experience of precious metal mining in this country is, that if a man does not expect to make his profit by changes in prices of stock, he must buy at such figures as to obtain a good high rate of interest on his capital invested. The so-called mining papers, stock papers, and general newspapers have written a great lot of nonsense about true fissure-veins and illimitable ore-chimneys—of ancient mines still working, and improved modern systems of working; but men of varied and practical experience will point to very few mines on this continent in which they would consent to invest their money for less than 25 per cent interest, simply as an investment, and supposing fair, good management. It does not seem, therefore, if this be granted, that the fourteen best and most reliable mines in the market are now selling low; but it does follow that the seventeen uncertain mines are selling higher proportionally than the good mines on expectations merely.

The chances for a good investment rest, it seems, not on averages, but on a judicious selection of mines; but as the public generally can not be very well informed, it seems fair, from an outside point of view, to fall back on averages for an opinion of the industry. This view is, however, confined to quoted stock companies, and some of the papers say: "Buy a prospect cheap, and open it into a valuable mine; or buy an opened mine for net value of ore in sight." Well, it is easy enough to follow the first part of the first suggestion; prospects are plenty, and range in price from $1.50 to $500,000, according to quality, or opinions and circumstances of owner. It must be admitted, however, that, though this is a "legitimate industry," it is a risk to the extent of the capital invested, as one who travels through the West and sees the thousands of prospects struggling to become valuable mines must acknowledge. Prospectors see farther into rock than most men, and as their prophecies of future richness can not be denied, purchasers usually pay for more than apparent value. The stocks of about 165 mines are quoted in New York; but the number of mining companies exceeds four hundred, not counting private firms and operators. There are in New York, Boston, and Philadelphia alone at least six hundred known mining companies; so that the total number in the United States must be very large. Of course, quite a number of the obscure companies and private firms have opened up valuable and profitable properties; but the immense majority of the unlisted companies and individuals have received no returns on their expenditures. If these failures be added to the $7,000,000 odd of last year's known assessments and listed stocks, the showing for 1881, as far as the public as a whole is concerned, will not be brilliant. As to buying a developed mine for net value of ore in sight, it is not often an owner will sell for that. If he does, the profit on the operation has still to be discovered, and in mining, what is "in sight" is not certain, and what is not in sight is "mighty uncertain."

The mining industry is a great one, and a very attractive one; but of late, too many men have been crying it up who do not know any more about it than the public they have tried to advise. There are natural difficulties in the way of the outside public getting accurate information; and these difficulties are increased by a strong tendency of the well-informed "insiders" to take advantage of their knowledge. The big fortunes to be made, and large interests on well-chosen investments, can be trusted to for keeping people enough at mining; but it is time that some of the last three years' claptrap of the papers was stopped; for it is at the bottom of all the harm done by the false reports, dishonest management, and stock deals together, by paving the way for all of them. If the above figures as to investment at present prices are fair, there does not seem much need for a "boom," if the public is to come in and buy. GAD.

THE CAUSE OF RUSTINESS AND OF SOME OF THE LOSSES IN WORKING GOLD.*

By Thomas Egleston, Ph.D.

There has always been a theory among those working placer mines that gold is both found "rusty" and becomes so under treatment, by which they mean, not that gold becomes coated with oxide of gold, but that it is either coated superficially or alloyed with some substance which prevents the contact with mercury, and thus precludes the possibility of amalgamation. To such conditions of the gold are ascribed the losses in working most placer deposits. Rusty gold is often talked about, but is not often shown, and when produced oftener amalgamates than not. It is frequently covered with a brownish coating, and has a much redder color than ordinary gold. The coating is very irregularly distributed over the surface, every spot where the least abrasion has occurred showing the true gold-yellow. All such spots form contact surfaces, and cause the whole piece to amalgamate readily. When the gold is wholly coated, it resists the action of the mercury for a considerable time, and perhaps altogether. This coating on gold is due to the superficial action of some substance which is soluble and is often precipitated at the same time and by the same causes as the gold; for fine particles of gold are sometimes visible with the microscope in the detached coating. This coating has never to my knowledge been carefully analyzed. Those who describe it say that it often cracks off from pieces of gold, leaving them bright. Nuggets of some size are said to have been found in South America, in alluvial soil, coated with a silicate of iron containing considerable gold. Very often the film is entirely composed of silica, which is deposited on and beside the gold. This silica is sometimes opaque, and again quite transparent, so that the gold can be seen disseminated through it with the microscope, just as cinnabar crystals are seen in the red chalcedony of the district around Knoxville, Cal. When the silica surrounds the gold entirely, it prevents the gold from being attacked by the mercury, just as the fine particles of gold from the veins are carried off in the rock when it has not been rendered sufficiently fine in the crushing. While there are many artificial causes which produce the rustiness of gold, this covering of the surface with particles of some foreign substance is probably the only one which occurs in nature. In the separation of gold from its ore, there are a number of causes which render it rusty or prevent its amalgamation in the mill. Some of these causes I have recently had occasion to investigate, and they are, I believe, now announced for the first time; others have been more or less known for a number of years.

It has been asserted that the presence of certain substances alloyed with the gold would prevent its amalgamation. This I have generally found not to be the case. I have made a number of these alloys, and have found them to amalgamate without difficulty; but chemical combinations frequently do resist the action of the mercury altogether, or when they yield it is attended with the formation of a chemical compound with the mercury, and the consequent loss of the latter.

In order to ascertain the causes which prevent the amalgamation of gold, I undertook to reproduce artificially the conditions which were supposed to prevent it. These I found to be mechanical and chemical. I found that if a piece of soft gold, which could be easily bent and amalgamated readily, was hammered on a perfectly bright anvil, with a bright hammer, giving several rapid blows, until the gold had become hard and had acquired a certain amount of elasticity, it would remain in juxtaposition with mercury for a very long time without being affected by it. This hammering increases the density of the metal and closes the pores, so that I have recently had a piece of gold, which was put into this condition by hammering, remain nearly two weeks floating on mercury without being attacked. If the gold in this condition is heated and cooled slowly, it again amalgamates rapidly. If, however, it is cooled rapidly by plunging it suddenly into very cold water, the amalgamation takes place very slowly. The same metal, after being repeatedly rapidly cooled and heated, amalgamates more readily than if it has only been treated once.

To ascertain the effect of different substances on the gold, a strip of

* Read before the American Institute of Mining Engineers.

clean gold which readily amalgamated was dipped into a solution of sulph-hydrate of ammonia, and also into one of sulphureted hydrogen. After being withdrawn from these liquors and allowed to dry, mercury would not touch either of the pieces. The effects of grease are well known, and the greatest care is taken in most mills to keep the "quick" bright, either by rubbing or by the addition of chemicals, to such an extent in some cases that the chemicals themselves used in excess are often the cause of the very thing they are intended to prevent. All these causes, the hammering, the effect of sulphureted waters, and also the effect of grease, occur in every mill, and probably have something to do with the losses in gold which take place there.

The effect of the different elements likely to be found with gold was also investigated. A strip of gold which would amalgamate easily was exposed to vapors of sulphur, after which it would not amalgamate. When the piece was heated in the flame of a Bunsen burner, the film of sulphide was decomposed, and the gold amalgamated readily. To test the effects of arsenic and antimony upon gold, these metals, in variable proportions, were melted with it, and it was ascertained that considerable quantities of arsenic and antimony were in the alloys. Both these alloys amalgamate very easily. Gold and arsenic and gold and antimony were then precipitated together, and it was found that the precipitates were compounds of antimony and gold and of arsenic and gold; they also amalgamated readily. It has been asserted that ·0004 gram of antimony to the ton of auriferous pyrites of Grass Valley, and ·001 gram in that of Callao, was sufficient to prevent the amalgamation of the gold.* This seems, however, to be not quite exact, if the statement given of the conditions in which the gold is found be correct; for there does not seem to be any reason why an alloy with a much larger amount, as in the artificial compounds, should amalgamate readily, and the natural one containing so much less, refuse to do so.

The effect of sulphur was further studied by making a regular sulphide of gold. When this was heated, it was found that the sulphur was readily driven off by ignition, and the residue, which was bright-yellow gold of exactly the same shape as the sulphide, easily amalgamated. A phosphide of gold was then made by pouring melted phosphorus upon hot sponge-gold, and expelling the excess of phosphorus by heating for some time in a non-oxidizing atmosphere. It did not amalgamate. Oxide of gold was made; but this compound is so very unstable and so readily reduced to metallic gold by simple rubbing that it could not possibly have any effect on preventing amalgamation, although it is not attacked by mercury. An amalgam of gold was then placed in acid, which easily dissolved out the mercury, and left behind a brown crystalline residue of gold, which readily took up mercury again.

It will thus be seen that the stamp-mill is not a rationally designed machine. The action of pounding is likely to put some of the gold into such a condition that the mercury will not touch it, and to flour the gold, as well as the quicksilver. There is, besides, in the mill every probability of the introduction of grease or greasy substances, like the powdered hydrated silicates of magnesia and of alumina, which not only froth but coat the gold with a slime which prevents the action of the mercury. If the water used in the mill is not pure, there is a further likelihood of the introduction of sulphureted hydrogen, and of other soluble sulphides, which act superficially on the small particles of gold, and prevent the action of the mercury. The pounding action of the stamp has doubtless the effect to make some of the particles of gold wholly unattackable by mercury, while the action of rubbing that occurs in the arrastra is much more likely to pulverize the fine particles of pyrites, to break up any coating that may be around the particles of gold, and to rub off any superficial deposit, and thus bring the gold into contact with the mercury and make it amalgamate. It would be folly to advocate the reintroduction of the arrastra which is so limited in its output, but I am satisfied that we shall have to come back to its principle. It is a very remarkable fact that when, in the early days, Mexicans with the arrastra got $50 to $60 a day, the stamp-mill working on the same rock obtained only $15 to $20, and instances are cited where with the best modern machinery only $20 to $30 can be got out of rock which yields $700 to $800 by the fire-assay. One or two machines have recently been constructed on the arrastra principle; but no systematic tests have been made of them, and little done beyond the singing of their praises by enthusiastic inventors.

LOCATIONS OF MINERAL CLAIMS AND FIRST DISCOVERERS OF MINERAL.

The case of Orion *vs.* Pendery was decided a short time ago by Justice Miller in the United States Circuit Court at Denver in favor of defendant. The Orion had been first located; but the Pendery, located subsequently on the same territory, discovered mineral in place before the discovery by the locators of the Orion claim.

Justice Miller, in delivering the opinion of the court, said that the question submitted to the court is this: Can prospectors on the public mineral domain acquire any right in which the law will protect them prior to the discovery of mineral in rock in place; and if so, can plaintiffs, being prior locators, recover against defendant, who first discovered mineral on the ground in controversy? It is the opinion of the court that inasmuch as the plaintiffs allowed the defendant to enter upon their claim and within their boundaries, and there sink a shaft in which he discovered mineral in rock in place before a discovery by plaintiffs, and make a location thereof, without protest, the defendant now has the better right. But the plaintiffs might have protected their actual possession of the entire claim by proper legal proceedings, prior to the discovery of mineral by the defendant, or by either party. A prospector on the public mineral domain may protect himself in the possession of his *pedis possessionis* (foot-possessions, so to speak) while he is searching for mineral; his possession so held is good as a possessory title against all the world, except the government of the United States; but if he stands by and allows others to enter upon his claim and first discover mineral in rock in place, the law gives such first discoverer a title to the mineral so first discovered, against which the mere possession of the surface can not prevail. Judgment for defendant.

* *Comptes Rendus*, March 17th, 1879.

A BUREAU OF MINES AND MINING.

The following is a bill introduced by Mr. BELFORD, of Colorado, in the House of Representatives, and referred to the Committee of Mines and Mining:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that a bureau, to be known as the Bureau of Mines and Mining, be established in the Department of the Interior, and connected with the Geological Survey, heretofore provided for by law. The purpose and object of said bureau shall be to gather statistics and acquire information respecting the mines and mining opertions of the United States, and to report such statistics and information annually, through the Secretary of the Interior, to Congress, for use and dissemination. There shall be at the head of said bureau one chief, who shall be skilled in the knowledge of minerals and mining, to be appointed by the President, with the advice and consent of the Senate, at a salary of three thousand dollars per annum; one assistant mineralogist, at a salary of two thousand dollars; one chief clerk, at a salary of one thousand six hundred dollars; two assistant clerks, at a salary of one thousand two hundred dollars each; four mining experts, at a salary of one thousand six hundred dollars each; and one messenger, at a salary of six hundred dollars.

SEC. 2. That a bureau, to be known as the Bureau of Manufactures, be established, to be connected with the Department of the Interior. The purpose and object of said bureau shall be to collect statistics and information respecting the various manufacturing industries of the United States, and to report the same annually, through the Secretary of the Interior, to Congress, for use and dissemination. There shall be at the head of said Bureau of Manufactures one chief, to be appointed by the President, with the advice and consent of the Senate, at a salary of three thousand dollars; one chief clerk, at a salary of one thousand six hundred dollars; two assistant clerks, at a salary of one thousand two hundred dollars each; four experts, at a salary of one thousand five hundred dollars each; and one messenger, at a salary of six hundred dollars.

SEC. 3. That there shall be established, to be under the Department of the Interior, a bureau, to be known as the Bureau of Labor Statistics. The purpose and object of said bureau shall be to collect and disseminate statistics and other information respecting the condition, skill, efficiency, and pay of labor in the various parts of the United States and in the various trades and avocations. There shall be at the head of said bureau one chief, to be appointed by the President, by and with the advice and consent of the Senate, at a salary of three thousand dollars; one chief clerk, at a salary of one thousand six hundred dollars; two assistant clerks, at a salary of one thousand two hundred dollars each; and two experts in gathering statistics, at one thousand five hundred dollars each. It shall be the duty of the chief of said bureau to make an annual report of the statistics and other information relating to the condition, skill, and pay of labor in the United States annually, through the Secretary of the Interior, to Congress.

SEC. 4. That the bureau now known as the Bureau of Statistics shall hereafter be known as the Bureau of Commerce.

PROGRESS IN SCIENCE AND THE ARTS.

Refining Pig-Iron.—The Hamoir practice of refining pig-iron tapped from the blast-furnace by blowing hot air through it has been in use at Moubeuge, Nord, France, for some years, and has made it possible to get ten charges instead of nine formerly out of a puddling-furnace, the reduction of the consumption of fuel being 10 per cent. The following analyses of crude (No. 1) and refined (No. 2) pig will readily explain this:

	No. 1. Per cent.	No. 2. Per cent.
Sulphur	0·037	·024
Phosphorus	1·710	1·440
Silicon	1·160	0·690
Carbon	4·100	2·800

According to Prof. N. Jossa, this process has been in use at Nisuje Tagilsk, Russia, since 1878, where a two-ton charge is refined in from 8 to 15 minutes, the waste being from 10 to 12 per cent.

American Society of Civil Engineers.—At the annual meeting of this Society in New York, January 18th, Mr. Ashbel Welch presided. The Board of Directors submitted their annual report, which embraces the 14 months ended December 3d, 1881, in which they congratulate the society upon the meeting being held in a building of its own. The report showed that there were 110 subscribers to the building fund, the total amount of which is $14,012. The number of members in the society at present is 605, of which 139 are residents and 466 non-residents. The report also set forth that during the fiscal year the demands made on the society for engineers to take charge of various works far exceed the number of members open to engagement. Reports were read from committees on a uniform system of tests of cement, on preservation of timber, on uniform standard time, and on the award of the Norman medal. The committee on the time and place for holding the next convention submitted a list of different propositions made on that subject, and then it was decided to hold it in Washington, the date to be fixed by the Committee on Direction. The election of officers for the ensuing year was then held. The report of the treasurer showed that during the fiscal year the receipts were $16,834.60, and the expenses $14,330.81; $9000 of the fellowship fund is invested in United States bonds. A resolution was, after much discussion, adopted, which provides that any member of the society who has contributed or shall contribute $500 to the building fund shall be exempt from dues during his life.

Roman Masonry.—At a meeting of the Engineers' Club, of Philadelphia, Mr. T. M. Cleeman described several examples of ancient Roman masonry. He regarded as the most important and remarkable for its excellent preservation, the aqueduct at Nismes, in the south of France, which was built at about the beginning of the Christian era, and represents the engineering skill of the Romans when their power was at its hight. It consists of three tiers of arches, the two lower being similar

and superposed on one another, the upper tier of much smaller dimensions, upon the top of which runs the water-channel. The various arches differ in span, lacking the regularity and conformity to one pattern of modern works. The center line was likewise not perfectly true, showing that no transit had been used by the engineer in charge. The approximate dimensions are as follows: largest arch, span 75 feet, piers 15 feet (by Rankine's rule about 11½ feet); ring stones, 4 feet thick (Rankine, 2½ feet); water-channel, originally 6 feet × 4 feet, rectangular, now reduced by calcareous deposit nearly 1 foot thick. Bond of piers, alternate header and stretcher, in courses of about 18 inches. In the lower tier, the arch-stones are laid in four, and in the middle tier in three rings, without bond; in the upper tier, in two rings, breaking joint. Closely-laid rings, without bond, were also observed in a Roman bridge at Avignon. Numerous stones projecting from intrados and face are supposed to have been left to support centers and scaffolding during construction. The whole structure seems to be founded on rock. An aqueduct near Rome and the Basilica of Constantine were also described. The latter was built about A.D. 300, and consists of bold arches, 66-foot span, of brick, one abutment of which is only about one third of the radius of the arch, which is considerably thinner than Rankine's rule would require; but the use of old Roman cement has reduced the structure almost to a monolith.

PHOSPHOR-BRONZE WIRE.—We learn that the Phosphor-Bronze Smelting Company of Philadelphia has started a rolling and wire-mill for phosphor-bronze alloys, which will, for the first time, offer facilities in this country for making bronze wire rope. Abroad, such cables, though costly, have gained much favor, as they last longer and are more pliable than steel.

NATIVE SILVER IN IRON ORE.—At a recent meeting of the Austrian Society of Engineers, reported in the *Oesterreichische Zeitschrift*, some specimens of native silver were shown which occur under peculiar circumstances on the east coast of Spain, in the province of Almeria, Las Herrerias, on the left bank of the Almangora River, near the Mediterranean. The Phœnicians and Romans mined in that locality, but probably stopped work during the fifth century. Mining now is almost entirely confined to a hill about 100 feet high, consisting almost entirely of iron ore, a hematite more or less manganiferous. Through it course a number of veins of heavy-spar. Along the northern, eastern, and southern part of this hill, which stretches toward the north for a distance of about 5000 feet, the iron ore is covered by a bed of marl, the so-called *laguena*, which has a thickness ranging between 160 and 500 feet. Below the marl and above the iron ore, is a bed of "flint," about 1·5 feet thick. In places, this flint is fissured and then forms rounded fragments, which have the appearance of having been acted upon by long rolling in water. In the northeastern part of the marl, are several beds of galena, low in silver, which are called *mantos*. The latter have been worked for forty years, no one having a suspicion of the rich silver ores lying below them until that metal was discovered in the layer of flint. The silver, which is generally native, occurs more frequently in the heavy-spar, and is occasionally found, too, in the iron ore proper, especially when it is lower in manganese. The texture of the silver is peculiar, it having a sandy appearance, and this, combined with the rounded shape of some of the flint, led to the idea that the whole might possibly be the result of the destruction of distant veins carried to the present site by water. Against this theory of an alluvial deposit, it should be noted that the vicinity is crossed by many dikes of trachyte and basalt. The marl contains shells and the teeth of fish belonging to the Miocene, the former often showing a crust of galena.

IRON ORE IN ONTARIO.

NEW ENTERPRISE MOOTED—STEEL-RAILS MANUFACTORY.

Mr. William Coe, who has been at work in the region of North Hastings, in the townships of Tudor, Madoc, Wollaston, Lake Limerick, and Marmora, exploring for iron, has secured, up to the present time, more than 16,000 acres of land, upon which have been discovered some five mines of large extent. He has just sold a three-quarter interest on all to S. J. Ritchie, of Akron, O., and J. B. & G. W. McMullin, who are proprietors of the Prince Edward County Railroad. The Prince Edward County Railroad intends immediately commencing the construction of the line some 70 miles north from Trenton, in order to tap these mines and bring the ore to "Packet Docks," to be built on Weller's Bay, on Lake Ontario, where the depth of water is from 15 to 20 feet. These mines are five of them magnetic and one hematite. Already men are at work developing and mining three of the mines. The area covered by four of them is 1500 feet by 100, with an average hight above the level of the surrounding country of about 100 feet, showing, as Professor Chapman states, about two million tons in sight in each of the four. From the assays of Professor Chapman, the percentage of metallic iron is from 65 to 68. The ores are free from sulphur or any other substance detracting from their value for the manufacture of Bessemer steel, and arrangements are already under way with several furnace owners in the United States for the sale of quantities of the ores. A deputation of mill-owners from Cleveland, Pittsburg, Youngstown, O., and other places will visit the mines within the month. Samples of these ores have been tested by them at their iron-works, and proved to be entirely satisfactory. Mr. Ritchie, the president of the company, is arranging for the erection of a charcoal smelting-furnace at the mines, and also expects to establish a steel-rail mill at Weller's Bay, which is the most convenient point. They expect to have the road and ditches completed in time to ship ore this coming fall. Judging from Professor Chapman's report, these new fields contain the promise of a very large industry in the near future.

GENERAL MINING NEWS.

ARIZONA.

BLACK WARREN.—We learn that a Lidgerwood hoisting-engine and a Root sectional boiler have been sent out to this mine, to hoist the ore to the tunnel level in the slope.

GLOBE DISTRICT.

OLD DOMINION.—The Globe *Chronicle* says: From examination, we are able to state that work on both the Old Dominion and Borva copper mines is progressing rapidly and with favorable results. On the Old Dominion, the tunnel is now 375 feet. The drift spoken of in our last notice, from the winze toward the main shaft, 65 feet in depth below the tunnel, now connects the two, and is in good ore the whole distance of 86 feet, increasing in quality every foot, the richest ore lying at the bottom of the drift. The exhibit shows an apparent solid cubic ore-body commensurate with the workings. In the Borva, the tunnel cutting the 12-foot shaft is now in 60 feet, with continuous ore from the shaft, a considerable quantity of the ore at the bottom of the tunnel beginning to resemble in appearance that of the rich ores of the Old Dominion. From the 110-foot shaft near the base of the hill, the drift is now in 12 feet, and steadily pushed forward. Altogether, both of these properties give promise of splendid results.

TOMBSTONE DISTRICT.

We are indebted to the Tombstone *Nugget* for the following notes:

CONTENTION CONSOLIDATED.—Among the changes to be made in connection with the future working of this property is the closing down of the old hoisting-works, which did such good service for the Western Company, the re-starting up of the new hoisting-plant, and the partial transfer of mining activity from the underground region of the old shaft to the region of the mine penetrated by the new shaft. Sinking will not be immediately resumed, but soon will be. For the present, the work of giving more connection between the Flora Morrison shaft and the new shaft of the Contention will be carried out. The latter is now 600 feet deep on a vertical plane, while the main shaft of the Flora Morrison scores 495 feet. The old hoisting-works, in all probability, will soon be dismantled, owing to the fact that the lode for some distance north of the Grand Central end line has been exhausted of its ore to the fourth level of its old workings, and from that point to the surface compactly filled in with waste, thus rendering the ground secure, and doing away with the expense of timbering. Viewed from an economical stand-point and otherwise, the completion of this work evinces good judgment and sound policy on the part of the management.

GRAND CENTRAL.—The main new working-shaft to date scores 510 feet deep, and the old shaft 600 feet. In the 100, 200, and 300-foot levels from the new shaft, considerable prospecting-work has been done and is still doing, with excellent success. There is no lack of ore in these levels, nor do the 400, 500, and 600-foot levels of the old works betray any want of it either. Stoping, rising, and other work are prosecuted vigorously and successfully in all portions of the mine from which ore is now extracted.

SAN PEDRO.—The new strike still continues productive, thus leaving room for much hopeful speculation. Main shaft 232 feet deep and now operated by a new and substantial horse whim. Shaft No. 2 is now 70 feet deep, and carries good indications of approaching ore.

SULPHURET.—This mine, for some time back idle, is about to be placed in readiness to supply water to the Girard 20-stamp mill, now nearly ready to be turned over to the company by the contractors.

CALIFORNIA.

INYO CONSOLIDATED.—Superintendent reports, January 2d: The mill has continued to run steadily since my last with good results, the ores running fully as high as I estimated. Including what I have already shipped for month of January, 1882, I expect it to be very near $40,000 for the month. Am now running through very low-grade ore, reserving the rich for last of run. Our Eureka mine still continues to develop finely, with every prospect of making a large and extensive body of rich ore. At present, I am milling ores from this mine which average $150 per ton. All the other mines continue to look well at all points.

THE BODIE DISTRICT.

The Bodie *Free Press* reports the product of the district for the five years ended December 31st, 1881, as follows:

1877	$979,022.80
1878	2,129,732.58
1879	2,556,847.58
1880	3,063,699.13
1881	3,173,000.00
Total	$11,902,302.09

The mine superintendents report no new developments in their statements for the week ended the 7th inst. Below we give in detail reports of the superintendents of some of the more important companies:

BODIE CONSOLIDATED.—During the past week, there were 70·94 tons of ore sent to the mill and 69·9 tons were extracted from the mine, as follows: 7·9 tons from the fifth incline level, 62 tons from the sixth level and the workings below. The mill crushed 114·04 tons, of which the average assay value was $75.24 per ton. The average assay value of the tailings was $8.67. The bullion shipment amounted to $7080.34. The north drift from winze No. 9 was advanced six feet during the past week, making its length 80 feet. The rock is very hard. The west cross-cut from this winze is 15 feet in length. This cross-cut will reach the rich seam that exists in the winze in about eight or ten feet farther. Winze No. 13 is now 126 feet below the sixth level. From the bottom of this winze, a west cross-cut has been started to reach the unexplored portion of the Fortuna vein west of the faulting red vein. The stopes look well. Some rich ore is taken from the vertical seam below the sixth level.

BULWER CONSOLIDATED.—The west cross-cut from the south drift, on the 500-foot level of the Standard mine, has been run during the week 10 feet, and is in 275 feet. The character of the ground remains unchanged.

LENT SHAFT.—Drifting on the 700-foot level continues. The station at the 800-foot level is not yet completed.

STANDARD CONSOLIDATED.—There were extracted and shipped to the mills during the past week 1310 tons of ore from the 300, 385, 500, and 550-foot levels. The average pulp-assay for the week was $17.14. There was shipped to San Francisco $21,566 in bullion. The east cross-cut, 1000-foot level, is in from the shaft 564 feet; progress for the week, 34 feet. The west cross-cut, 700-foot level, has been run, since last report, 8 feet; total length, 405 feet. The east cross-cut is in 680 feet. The face is in hard blasting rock. The south drift from this east cross-cut is now 328 feet in length. The south drift from the main east cross-cut, 500-foot level, is in 581 feet, showing the vein to be 4 feet wide. West cross-cut No. 1. from this south drift, has been advanced 10 feet; total length, 275 feet. The character of the rock remains unchanged. West cross-cut No. 2 is in 75 feet. The ground is favorable. The uprise on the Bullion vein, 550-foot level, is up 140 feet. The vein at this point is 6 feet wide. The uprise on the Cook vein, 385-foot level, has been raised 14 feet; total length, 147 feet, showing a vein 4 feet wide. The different stopes look well, and are yielding as usual.

CANADA

The Duryea Experimental Furnace Company, of Cleveland, Ohio, has just invested in a large quantity of iron mining lands on the other side of the river, near Hull, and will, it is understood, engage extensively in smelting operations next spring.

NOVA SCOTIA.

GALLIHAR.—The Montreal *Gazette* of the 16th says: The president, treasurer, and directors of the Gallihar Gold Mining and Milling Company have left for Isaac's Harbor, to inspect the company's property there, preparatory to starting a new ten-stamp mill recently made for them. Since the purchase of Isaac's Harbor mine, in July last, it has been thoroughly equipped with new and sub-

stantial mill buildings and mining machinery of the most approved pattern. Eighty-six men are employed at the works.

COLORADO.

CHAFFEE COUNTY.

CLEORA COPPER MINES.—The Salida *Mail* says that Cleora District, just below Salida, on the Arkansas River, is noted more for its numerous lodes of copper than for its mines of gold and silver, though scores of true fissure-veins already opened produce ores which invariably carry both gold and silver in small quantities. Though low in grade, the ore is free-milling, and offers a fine opening for parties who desire to erect stamp or chlorination-works. The ore is sought by the smelters at Leadville and Breckenridge for its copper contents. But little work was done in this district during the past year, owing to various causes, mainly because some of the owners of mines were too poor to prosecute developments, others too infernally lazy, and still others engaged in the "freeze-out" game with impecunious partners. The Bellefontaine Company, composed of residents of Bellefontaine and Cleveland, O., has had a force at work nearly the entire year on a tunnel designed to tap its Sunnyside lode. This tunnel has been pushed to a depth of 230 feet, and is under contract for a farther advance of 50 feet. The ore in this lode, which is about three feet wide between walls, at the outcrop is a white quartz, carrying gold, silver, and copper, and is a fair average representative of the district.

CLEAR CREEK COUNTY.

ATLANTIC-PACIFIC TUNNEL.—The present length of the west end is 342 feet. The first 150 feet is heavily timbered. A drift has been run 185 feet on the second lode intersected. Where first cut, the ore-vein was 27 inches wide, but a horse reduced the size of the pay streak for about 100 feet. Work was commenced on the 24th day of February, 1880. It has been steadily prosecuted. It is now done under contract.

PELICAN-DIVES.—The lease on the Unicorn is constantly improving. The drift is pushed by two men; it is looking well, with two inches of ore. Four men are at work on the stopes, which show from three to six inches of ore. The *Coloradean* states that a mill-run returned 321 ounces silver for first-class, and 143 ounces second-class. The amount of gray copper is increasing, and the next mill-run will probably be higher.

CUSTER COUNTY.

A correspondent of the Denver *Tribune*, writing January 6th, says:

The Waitz sampling-mill starts up this week, and all are on the *qui vive* as to the result of the professor's process. Many express great confidence, which, if realized, will whoop up things until Silver Cliff can afford to forgive her enemies and smile upon those who despitefully use her. The Silver Cliff Company announced some time since that work at the mill and mine would be resumed some time between the 1st and 10th of this month. An occasional blast at the mine proclaims that something is going on, but things are certainly not rushed. The Game Ridge mill is about completed, of which Carl Wulsten seems to be sole manager. He has also been deputed to sound the depths of the Bull-Domingo, and may be called to-day the mining mogul of Custer County.

GILPIN COUNTY.

The following items concerning mines in the vicinity of Central City are extracted from recent issues of the *Register-Call:* The Wyandotte Consolidated Mining Company is fixing up to resume work again on its property in Russell District, closed down temporarily several weeks ago. A gentleman over from Gold Dirt says that the 16-stamp mill of the Rollins Company is doing better work than ever in treating mill ore from the Perigo mine. Several capitalists have paid Gamble Gulch a visit during the past ten days with a view to the erection of a custom mill to facilitate the treatment of ores on Perigo Mountain and vicinity. The New York Mill Company's 75-stamp mill in Black Hawk is full of ore, with no signs of the supply giving out. The shaft on the Illinois mine is now 400 feet deep. At this point in the mine workings, a better crevice has been uncovered than at any point above in its downward course. In the west end of the shaft, a vein of mineral four inches in width has been struck, which is widening as depth is gained, alongside of which is quite an amount of mill-dirt.

LAKE COUNTY.

The Leadville *Circular* approximates the daily output of the leading mines of Leadville at the present time:

Mines.	Tons.	Mines.	Tons.
Miner Boy	—	Frenchman	3
Little Pittsburg	12	Evening Star	130
Chrysolite	30	Henriette	25
Little Chief	15	Robert E. Lee	30
Iron Mine	225	Big Chief	25
Silver Cord-Wave	60	Matchless	40
Catalpa	10	Hibernia	12
Little Ella	20	Dunkin	12
Oro La Plata	50	Carbonate Hill	10
Glass-Pendery	20	Long & Derry	12
Morning Star	130	Climax	0
Argentine	40	Comstock	3
Little Prince	12	Crescent	8
Little Sliver	—	Big Pittsburg	12
Colorado Prince	—	Dyer	2
Florence	2	Etna	10
Amie	0	Agassiz	10
New York	6	Leadville	10
Small Hopes	—	A. Y.	100
Robert Emmet	5	Little Missouri	12
Shields	8		
Brian Boru	10	Total tons	1121

AMIE.—Reports from this mine are not encouraging. But little ore is taken out, and that little from the upper levels, work in the deep shaft having been abandoned on account of the flow of water.

BIG PITTSBURG.—A small amount of ore is extracted from the Heytrosser and the Joe Bates shaft by lessees.

CLIMAX.—Several lessees are at work, but are not taking out much ore, the shipments that are made being of very low grade.

MORNING STAR.—The mining reporter of the Leadville *Democrat* made a tour of the workings of this mine on the 12th inst., and reports as follows: During the examination of the mine, the second level was visited. Here two cross-cuts show a large amount of sand carbonates, very rich in lead and carrying a good paying grade of silver. The mass of contact filling is also a very fair ore, and most of it is worth shipping. Some galena is found in the deposit here, which gives a good return of silver. The stope now opened out between levels Numbers three and four shows a large body of sand carbonates that can be seen over a considerable extent of ground, and assay well both in silver and lead. The ore is to be mined in the most economical manner possible, and chutes and tracks are being put in with this in view. The workings will directly connect with the main engine plane, which will necessitate the ore being handled but once. The workings all through the mine present numerous faces of ore in such abundance that all could hardly be noted. The Waterloo incline, however, is following down on a very regular body of sand and hard carbonate lead ore, which is variable in grade from the chloride of silver ore that is dispersed through the mass. This will be run out to the line, and then a horizontal connection will be made with the Waterloo shaft, which is to be sunk for the purpose. When this is done, the ore can be very economically handled, and it will then not have to be hauled up the steep grade made by following the pitch of the mineral. Near the top of this incline, a seam of very good sand carbonate is now working. The same ore-chute is extensive, being traced over a considerable part of the workings. The underground work of the mine is undoubtedly in as satisfactory a condition as well could be, taking into consideration the manner the mine was formerly worked.

MEXICO.

THE COSALA DISTRICT.

Mr. Portio de Amescua, government inspector of the Sinaloa & Durango Railroad, reports favorably on the mineral wealth of the district of Cosala, there being silver and lead mines between Arallanes and Tapias, at Trancas and at Monteverde. Among the famous mines worked in colonial times, but now abandoned, are the Palo Blanco and Venadillo. Near San Lorenzo, a large number of veins are known, some of them being worked in a small way at the present time, and on the same scale there is some mining done near Santa Cruz. In the Guadalupe de los Reyes range north of Cosala, the principal vein is the Estaca. South of Cosala lie the Barreteros Mountains, in which the copper deposits of Cobriza are found. These and the mines in San José de las Brocas Mountains are worked on a small scale and are the principal source of revenue of the city of Cosala. At Santa Aña, on the banks of the river, is the Nuestra Senora and a *hacienda* or mill, the river being spanned by a wire bridge built by an American company. Altogether, there is much evidence of mineral wealth in this district, which is to be opened by a railroad in the near future.

MONTANA.

ALICE.—The Butte *Miner* of the 8th says: The Magna Charta ore, which has been contributing for some time to the Alice mill supply, is more friable and more easily worked than the Alice ore, and for that reason naturally a larger and larger proportion of ore for the mill has for some time past been taken from the Magna Charta. Hence as much ore is not needed from the Alice mine as formerly, the Magna Charta ore being, if any thing, richer, and requiring to be hoisted a much less distance. Still, over half the ore which supplies the eighty stamps now comes from the Alice mine. The Magna Charta is just now thoroughly opening up. As development goes on, the average assay increases. The shaft is now down about 413 feet, and a cross-cut has been run about ten feet north and south from the 400-foot station. The work is done by contract, which requires the cross-cut here to run 100 feet each way. At a distance of about fifteen feet, the first south vein will be struck, there being three valuable veins south of the shaft. The north vein will probably be struck about 70 feet from the shaft. The second south vein is likely to be reached in 100 feet from the shaft.

LEXINGTON.—The owners of the Lexington have contracted with Messrs. Fraser & Chalmers for the erection of a new mill, which is to contain two Stetefeldt roasting-furnaces, two of Stetefeldt's new drying-kilns, forty stamps for ore, and ten for salt. The mill was designed by Mr. C. Stetefeldt, and will contain some novel features, both in the way of machinery and general arrangement of the plant. The Butte *Miner* reports the condition of the mine as follows: The shaft is now down between 285 and 290 feet, and in a short time will be sunk to the 300-foot level, on which a cross-cut will be run to the main vein. No cross-cut was run from the new shaft in the 100-foot level, as the old shaft had been sunk to that depth. On the 200-foot level, drifting is progressing steadily, and indeed throughout the whole mine work is at present directed simply to thorough development. No stopes have yet been commenced on the 200-foot level, as stoping will not be necessary, nor a part of the general plan of work, until the stamps in the new mill are ready to drop.

MOULTON.—The same paper states that work in this mine is at present confined to the 100, 200, and 300-foot levels. On the 100-foot level, drifts have been run east and west about 30 feet on the north vein. The ore found is first-rate, but no stoping is done here at present. On the 200-foot level, drifts are running east and west on the center vein, and are in about 100 feet each way. On the east drift, two or three stopes are worked, and good ore is extracting. The winze from the east drift on this level has been connected with the rise from the east drift on the 300-foot level, in which good ore was found. On the 300-foot level, a drift is running west on the center vein, and is in about 200 feet, some stoping being done on this drift. The east drift on this level has been run to the Alice line, and a rise is making to connect with a winze from the level above. On the 300-foot level, drifting is going east on the north vein, and two stopes are worked. The drift is in about 100 feet, and good ore is taken out. The average output now is about from 25 to 30 tons per day, which amount will not be increased until the Cornish pumps are ready to be operated—about February 1st. The main vein will then be worked on the 400-foot level, and all the veins on the 500-foot level. The mill machinery is running smoothly, 20 stamps working with ease and regularity.

NEVADA.

Official reports of January 7th are as follows:

MOUNT DIABLO.—The winze from the cross-cut at the bottom of winze No. 1, on the third level, has reached a depth of 42 feet, and shows ledge-matter in the bottom. The intermediate, below the third, does not look so well as at the time of last report, but the prospect is good for the ore to open. The east drift from winze No. 3 is in 80 feet, and has small bunches of low-grade ore in the face. The east drift on the third level has been advanced 15 feet, and is in promising ground. The stopes from this drift, two in number, are about 90 feet apart, and there is a good prospect that the ore will continue between them. Both of them show improvement. The west drift on the third level is in very hard ground, and shows no ore at present. The winze from the west drift, on the second level, is down 62 feet, and shows a well-defined vein of $45 ore. The east drift on this level does not look so well, but there is every reason to expect that the same ore-body now showing in this direction on the third level will be struck by running ahead the drift.

NORTHERN BELLE—On account of the favorable prospect in the winze from the west drift on the fourth level, sinking has been begun in the main shaft. The principal work in the fourth level during the week has consisted in sinking the winze mentioned above and in running the cross-cut from the uprise to connect with the winze from the third level. The winze below the fourth level is down a distance of 25 feet, and the outlook is quite encouraging, showing two feet of ore which will average $80 to $90 per ton, some of the assays going as high as $400. The formation in the vicinity is also promising. The other shaft levels show no material change, with the exception of the sixth, which is furnishing some very good ore. The levels above the adit do not present as favorable an appearance as last week, and the production is not as great. The daily yield of ore from the mine has been about 50 tons. Mill No. 2 is running steadily and doing the usual amount of work. Total bullion shipment for December, $79,740.31. Shipment on January account to January 4th, $4460.02.

NEW MEXICO.

A dispatch from El Paso, Texas, states that the Atchison, Topeka & Santa Fé Railroad Company has ordered the survey of a standard gauge branch into the Black Range, N. M., taking in all the mining camps on the west slope of the range; also, one from San Antonio east to White Oak via the San Pedro coal mines; another from Nut Station to Lake Valley, at the south end of the Black Range; and another from Dona Aña to the Organ Mountain Camp, east of Las Cruces.

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Jan. 20.

There is a slow improvement in the mining market. It is not, however, of a healthy character. Those who are dealing in mining stocks are gambling on the success of proposed manipulation and deals, and care but little what the mines will do. Some may be quick enough to reap a profit in their operations, but as the dealings are more in the mines that are already selling at prices which indicate the discounting of developments, the chances are all in favor of an ultimate decline rather than an advance. The stocks most worthy of attention are only dealt in to a moderate extent. The sales for the week under review aggregate 1,091,086 shares.

The Comstocks have been very active, extending over a long list, but generally at weak prices, with some recovery before the close. California was dealt in to the extent of 18,786 shares at 42@28c. Consolidated Virginia records sales of 32,500 shares at $1.20@$1. Sierra Nevada ranged between $7⅛@$8¼, with sales of 1560 shares. Best & Belcher was active, the sales aggregating 1870 shares at $8@$7½. Consolidated Imperial was fairly active at 3@4c. Sutro Tunnel ranged between 88c.@$1.10, with transactions aggregating 15,025 shares. Union Consolidated was almost neglected.

The Tuscarora stocks show a little more activity, and the list is being revived in speculation. The only important feature of the week has been a business of 3400 shares in Navajo at 39@60c.

The Bodie stocks have had a very fair attention. The feature has been a slight improvement in Bodie, which, after declining from $2¾@$2½, advanced to $3, under sales of 2910 shares. It is very evident that if any thing comes from this district, that pack of cats will follow. Standard, although touching $14½ during the week, ranged mostly between $16@$16½. Boston Consolidated was active at 45@41c. Belvidere appeared among the dealings to-day, the first time for months past. The sales reported aggregate 2500 shares at 44@41c.

Alice has been quiet at $2.80@$2.95. Amie has been quite active at 15@19c. Chrysolite has been somewhat neglected, although steady, at $4.25 @$4.50. Green Mountain has ranged between $1.95 @$2.05, with a moderate business. Hibernia has been active at 20@27c. Horn-Silver, under a moderate business, has been steady. Iron Silver, under liberal transactions, has been very strong at $2@$2.15. Both Little Chief and Little Pittsburg have had a liberal business with limited fluctuations. Moose has been active at 97@89c. Northern Belle sold at $7.13 on Wednesday, but recovered to $10 to-day. Robinson Consolidated is receiving the usual attention, the sales amounting to 102,425 shares at $2.50@$3.25. Spring Valley, with a business of 950 shares, sold at $4.05@$4. Stormont, under a small business, sold at $1.40@$1.10. Vizina has been fairly steady under moderate transactions.

Bradshaw has been active and weak at 60@47c. Central Arizona has ranged between $1.50@$1.35, with sales of 4400 shares. Mariposa, Common, has had a moderate business at $3.25@ $2@$2.50. Oriental & Miller, under moderate transactions, has been steady at 33@35c. Rappahannock has been active and shows a great deal of strength, the sales amounting to 25,750 shares at 20@30c. Some very good ore is reported to have been struck in one of the old shafts. Silver Cliff has been quiet and a little weak, selling at $2.70 @$2.45. South Pacific has been made to record sales of 58,520 shares at $8¼@ $4. It is very evident the insiders and not the public make the price for this stock. State Line has been fairly steady under a liberal business, the sales amounting to 21,900 shares at 22@26c. Nos. 2 and 3 have been very active, the sales aggregating 187,300 shares at $1.55@$1.25.

The Denver City Consolidated Silver Mining Company has paid off its bonded and floating debt, amounting to $175,000, and has a balance in the treasury of $5000. Dividends, it is said, will soon be in order.

DIVIDENDS.

The Copper Queen Mining Company has declared a dividend (No. 8) of 10 cents per share, payable February 1st. Transfer-books close January 30th.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	SHARES. No. in 1000's	SHARES. Par Value.	ASSESSMENTS. Lev'd to date in 1000's.	ASSESSMENTS. Date and amount per share of last.	DIVIDENDS. Total paid to date in 1000's.	DIVIDENDS. Date and amount per share.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE	Jan. 14. H.	Jan. 14. L.	Jan. 16. H.	Jan. 16. L.	Jan. 17. H.	Jan. 17. L.	Jan. 18. H.	Jan. 18. L.	Jan. 19. H.	Jan. 19. L.	Jan. 20. H.	Jan. 20. L.
Alice, Mon.	400	25	*		400	De 81 10						2.85		2.95	2.80	2.85			
Amie Con., Co.	500	10	*		305	My 81		.17	.15	.18	.15	.19	.16	.19	.18	.19	.17	.17	.16
Argenta, Ne.	100	100	140	Se 81 10	40	Fe 80 20													
Bar & Walker, Ut.	100	10	*		60	No 80 10													
Bassick, Co.	100	100	*		25	Fe 80 25		5.00											
Belle Isle, Ne.	100	100	55	Se 81 10	300	De 79 25													
Black Bear, Ca.	90	100	15	Se 79 50	830	De 81 20													
Be cher, Ne.	104	100	2380	Se 81 1 00	15397	Ap 76 75													
Bodie Cons., Ca.	100	100	125	De 81 50	1200	Mr 80 25		2.75	2.63	2.75		2.75	2.50	2.63	2.50	2.80	2.50	3.35	3.00
Breece, Co.	200	25	*		2	Fe 80 1		.30											
Bulwer Ca.	100	100	30	De 77 50	20	Ja 82 10		2.70	2.65	2.70								2.65	
California, Ne.	640	100	162	Je 81 30	31320	De 79 50		.37	.30	.42	.21	.40	.35	.38	.30	.34	.28	.30	.29
Cal. & Hecla, Mich.	100	25			20350	No 81 5 00													
Carbon Con., Co.	100	10	*		50	Mr 80 10				2.50									
Catalpa, Co.	300	10	*		180	My 81 2													
Chrysolite, Co.	200	50	*		1600	De 81 50		4.35	4.25	4.30		4.35	4.30	4.30		4.50	4.30	4.35	4.20
Climax, Co.	200	10	*		180	Au 80 30				.35	.32	.37	.35	.39	.35			.40	.30
Cons. Va., Ne.	540	100	573	Au 81 30	42030	Au 80 50		1.10	1.00	1.20	1.00	1.20	1.05	1.10	1.05	1.10	1.05	1.10	
Copper K'b, N.C.	1000	1	*		15	No 80 02													
Copper Queen, Ar.	250	10	*		200	Ja 82 10													
Crown Point, Ne.	100	100	2573	Se 81 75	11588	Ja 75 2 00													
D'dw'd-Terra, Dk	200	25			4596	De 81 15													
Dunkin, Co.	200	25	*		200	Ju 81 7½										35	.30	.40	.35
Eureka Cons., Ne.	50	100	100	My 76 1 00	4730	Se 81 50				13.00						14.00	13.25		
Evening Star	50	10			650	Ja 82 1 00													
Excelsior, Ca.	100	100	200	De 81 1 00	850	Se 80 25						.25							
Exchange, Ne.	100	10	*		15	03													
Fa. de Smet, Dk.	100	100	*		365	Ja 82 25				6.75				7.00		7.00			
Findley, Ga.	200	1	*		8	My 79 1c				.26				.25					
Freeland, Co.	200	25	*		50	My 80 25													
Gem, Co.					4	De 81													
Glass-Pend., Co.	250	20	*		25	My 81 10													
Gold Stripe, Ca.	150	10	*		75	Jy 81 15				.25				.25		.30	.25		
G'ld & Curry, Ne.	108	100	3314	Jy 81 50	3826	Oc 70 $10				4.10						4.10			
G and Prize, Ne.	100	100	340	Oc 81 25	450	Se 80 25						.12							
Great Eastern, Dk	300	1	*		16	Jy 80 01		.08		.09	.08	.09				.09		.09	.08
Gr. Mountain, Ca.	125	10	*		212	No 81 7½		2.00	1.95	2.05	2.00			2.05	2.00	2.05	1.95	2.00	
Hale & Nor., Ne.	112	100	3838	De 81 75	1598	Ap 71 5 00													
Hibernia, Co.	300	25	*		180	Jy 81 10		.23	.21	.22	.20	.23	.20	.25	.22	.27	.22	.25	.22
Homestake, Dk.	100	100	200	Ap 78 1 00	1230	Ja 82 30						15.63	15.00			16½			
Horn-Silver, Ut.	400	25	*		5	No 81 75		16.50		17.00	16.75	16.75		17.00		17.00	16.75	16.75	16.63
Hukill, Co.	200	5	*		210	De 78 10		.64		.64	.63								
Idaho, Ca.	3100	100			3	78 De 81 7 50													
Indep., Ne.	100	100	170	Au 81 15	225	Se 79 25										.10			
Inn. Queen, Ne.	125	2		Fe 80 15	28	Se 81 05													
Inyo, Ca.	100	5	*		40	De 81 05													
Iron Silver, Co.	500	20	*		500	De 81 20		2.10		2.10	2.00	2.15	2.05	2.05				2.15	2.00
Jocuistita, Mex.	100	100			200	No 81 1 00													
La Plata, Co.	200	10	*		430	De 81 7½		9.25										10.00	
Leadville C., Co.	400	10	*		170	De 81 05						.75				.70		.70	
Leeds, Ut.	60	100	51	Je 81 25	78	Oc 78 15													
Little Chief, Co.	200	50	*		700	Au 80 50		.87		.90	.85	.89	.85	.87	.85	.86	.83	.84	
Little Pitts., Co.	200	100	*		1350	Mr 80 50		2.00		2.10	1.95	2.15	1.88	2.00		2.10	2.00		
Martin White, Ne	100	100	875	Je 81 25	90	Jy 79 50				2.10									
Moose, Co.	200	10	4		550	Mr 78 25		.97		.97	.89	.96	.85	.92				.95	.90
Navajo, Ne.	100	100	200	De 81 15	25	Mr 81 25		.45	.42	.43		.43	.39	.53	.44	.58	.60	.60	.59
N. Y. & Colo., Col.	50	20	*		25	Jy 79 10													
N'th Belle, Ne.	100	100			2088	De 81 75		8.50	8.00	8.00	7.25	7.50	7.13	9.00	7 13	9.13		10.00	9.50
N. Belle Isle, Ne.	100	100	25	Fe 81 15	30	Au 81 15						.18							
Ontario, Ut.	150	100			4625	Ja 82 50		33 00						34.50					
Ophir, Ne.	100	100	3192	Mr 81 1 00	1603	Ja 81 1 00				7.00	5.50	6.25	6.00	6.75		5.88	5.25	6.00	
Osceola, Mich.	50	25			610	Oc 81 1 50													
Pumas, Ca.	100	10	*		151	Jy 79 8													
Quicks. Pref., Ca.	43	100			306	Au 81 9 25		62.00	60¾	61 88	61.50	61.88	61.00	61.50		62¼	62.00		
" Com., Ca.	57	100			128	Au 81 2 25		14.25	14 00	14.25	14.00	13.50		14.00	13.50	14.00	13.88	13.63	13 50
Quincy, Mich.	40	25			2710	Au 81 3 00													
Rising Sun, Ca.	150	5	*		52	My 81 7½		.66	.65	.70		.71	.70	.70	.65				
Robinson C., Co.	200	50	*		575	No 81 50		2.70	2.50	2.70	2.60	2.80	2.65	2 95	2.65	3.15	2.90	3.25	2.70
Robt. E. Lee, Co.	500	500			50	Jy 81 1													
Savage, Ne.	112	100	5440	No 81 50	4460	Ju 79 3 00						1.60				1.60			
Sierra Nev., Ne.	100	100	4850	De 81 1 00	102	Ja 71 1 00		8.25	8.00	8.25		8.00		7.88		7.88		8.00	
Silver King, Ar.	100	100			800	De 81 25								15.00					
Silver King, Co.	500	2			50	Au 81 10													
Spr'g Valley, Ca.	200	1	*		50	Ja 81 25		4.05		4.05	4.00	4.05	4.00	4.00					
Standard, Ca.	100	100	50	Jy 78 1 00	8375	Ja 82 75		16.50	14.50	16.38	15 25	16.00	15.25	16.50	16.00	16½	16.00		
Starr-Grove, Ne.	200	10	*		160	Ju 81 10		3.25											
Stormont, Ut.	300	1	*		155	No 81 05		1.25		1.40	1.30	1.25		1 30	1.05	1.10			
St. Joseph, Mo.	100	10	*		290	De 81 20													
Tip Top, Ar.	100	100	120	Mr 80	100	No 81 20													
Tombstone, Ar.	500	25	*		1100	Ja 82 10													
Vizina, Ar.	200	25			80	De 81 10		2.80	2.75	2.80	2.75	2.60		2.80	2.75	2.85	2.80	2.90	2.85
Yel. Jacket, Ne.	120	100	4150	Oc 81 1 00	2184	Au 71 3 50						2.90				2.95			

SALES.—Alice, 1500; Amie Consolidated, 36,300; Bassick, 100; Bodie Consolidated, 2910; Breece, 200; Bulwer, 450; California, 18,786; Caribou, 500; Chrysolite, 2620; Climax, 8150; Consolidated Virginia, 32,500; Dunkin, 1200; Eureka, 180; Excelsior, 100; Father de Smet, 400; Findley, 1100; Gold Stripe, 1000; Gould & Curry, 250; Grand Prize, 500; Great Eastern, 4600; Green Mountain, 4550; Hibernia, 27,200; Homestake, 300; Horn-Silver, 1780; Hukill, 700; Independence, 300; Iron-Silver, 6100; La Plata, 250; Leadville, 900; Little Chief, 4300; Little Pittsburg, 4600; Martin White, 200; Moose, 13,450; Navajo, 3400; Northern Belle, 1455; North Belle Isle, 1000; Ontario, 120; Ophir, 645; Quicksilver, pref., 3400; common, 2300; Rising Sun, 1900; Robinson Consolidated, 102,425; Savage, 300; Sierra Nevada, 1560; Silver King, 100; Spring Valley, 950; Standard, 1645; Starr Grove, 100; Stormont, 2750; Vizina, 3100; Yellow Jacket, 300. Dividend shares sold, 441,226.

The Evening Star Mining Company has declared a dividend (No. 28) of five per cent on the capital stock; also a dividend (No. 29) of the same amount, making a total of ten per cent, payable January 27th. Transfer-books close on the 24th.

The Father de Smet Consolidated Gold Mining Company has declared a dividend (No. 17) of 25 cents per share, payable February 1st. Transfer-books close on the 21st.

The Horn-Silver Mining Company has declared a dividend of $300,000, or 3 per cent on the capital stock, payable February 15th. Transfer-books close February 7th.

The La Plata Mining and Smelting Company has declared a dividend (No. 29) of 7½ cents per share, and an extra dividend of 2½ cents per share—total to date, $450,000—both payable February 1st. Transfer-books close January 25th.

The Mariposa Land and Mining Company has declared a stock dividend of 10 per cent upon the stock upon which all assessments have been paid.

The Vizina Consolidated Mining Company has declared its usual monthly dividend (No. 5) of 10 cents per share—total to date, $100,000—payable February 1st. Transfer-books close January 26th.

UNLISTED QUOTATIONS.

Mr. L. V. Deforeest, No. 70 Broadway, under date of January 20th, 3 P.M., reports the current quotations of unlisted stocks as follows:

	Bid.	Off'd.		Bid.	Off'd.
Colum. & Beaver	$0.50	$0.85	Hite	....	$2.25
Eagle	....	2.25	Madre	....	2.90
Hall-Anderson	1.30	1.35	Menlo	....	1.50
Harlem	1.25	1.30	Native Silver	0.08	....
Highland Chief	....	1.95	Satemo	1.10	1.30

REVIEW OF THE SAN FRANCISCO MARKET.

There is no improvement in the San Francisco quotations; indeed, the better class of stocks are below the low prices quoted a week ago. Small assessments continue to be levied with great regularity, the latest being: Utah, $1; Champion, 25 cents; Bodie, 25 cents; Exchequer, 25 cents; Tioga, 10 cents. At the recent sale of delinquent stock of the Betty O'Neal, 33,000 shares were bought in by the company, as there were no bidders. Northern Belle shows some improvement. It is stated that a strike has been made in the lower levels of this mine. Recent quotations of Eureka Consolidated show some improvement. It is stated that the profits of the Richmond Mining Company, of Eureka, during the past six months, after paying all expenses, have been over a quarter of a million of dollars.

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS. Jan. 13.	Jan. 14.	Jan. 16.	Jan. 17.	Jan. 18.	Opening. Jan. 19.	Opening. Jan. 20.
Alpha	1¾	1¾	1¾	1¾	1⅝	1⅝	.....
Alta	4⅛	4	4⅜	4⅛	4⅜	4½	.....
Bechtel	5-16	13-32	13-32	13-32	½	7-16	.....
Belcher	1½	1½	1½	1⅜	1⅜	1¼	.....
Belvidere	.....	.....	.....	.....	.....	.....	.....
Best & Bel	7⅜	7¾	7¾	7⅜	7⅜	7½	.....
Bodie	2½	2¾	2½	2½	2½	3⅛	.....
Bullion	29-32	27-32	15-16	29-32	29-32	13-16	.....
Bulwer	.....	.....	.....	.....	2⅝	.....	.....
California	11-32	13-32	13-32	5-16	5-16	5-16	.....
Challar	1⅛	1⅛	1⅛	1⅛	1⅛	.....	.....
Con. Va	1⅛	1⅛	1¼	1⅛	1⅛	1⅛	.....
Crown P'int	29-32	29-32	15-16	29-32	¾	13-16	.....
Eureka Con	.....	.....	13	13	14	.....	.....
Exchequer	¾	¾	¾	¾	.....	¾	.....
Goodshaw	.....	.....	.....	.....	.....	.....	.....
Gould &Cur	3⅞	4	4	3¾	3¾	3⅞	.....
Grand Prize	.....	.....	.....	.....	.....	.....	.....
Hale & Nor	1⅜	1⅜	1⅜	1⅜	1¼	1¼	.....
Manhattan	1½	.....	.....	.....	.....	.....	.....
Mar. White	2⅜	2⅜	2⅜	2½	2½	2½	.....
Mexican	10⅛	10⅛	10	9½	9½	9⅞	.....
Mono	.....	.....	.....	11-16	.....	1	.....
Mt. Diablo	7¼	7¼	8	8	8	8	.....
North. Belle	7¾	7½	7⅜	8¾	9⅜	10¼	.....
Noonday	.....	.....	.....	.....	3-32	1-16	.....
Ophir	6¼	6⅜	6	5⅜	5¾	6	.....
Oro	3-32	.....	3-32	3-32	3-32	.....	.....
Overman	15-16	1	1	15-16	29-32	1	.....
Potosi	1½	1½	1½	1⅜	1½	1⅜	.....
Savage	1½	1½	1⅜	1⅜	1⅜	1⅜	.....
Scorpion	29-32	15-16	15-16	1	.....	15-16	.....
Sierra Nev.	8	8	7⅞	7½	7¾	8	.....
Silver King	19¼	19⅞	19½	.....	19½	19¾	.....
So. Bodie	.....	.....	.....	.....	.....	.....	.....
So. Bulwer	.....	.....	.....	.....	.....	.....	.....
Tioga	.....	.....	.....	.....	.....	.....	.....
Tip Top	5	5	5	.....	.....	.....	.....
Tuscarora	.....	.....	.....	.....	.....	.....	.....
Union Con	11¼	11¼	11⅛	10½	10⅜	10⅝	.....
Wales Con	.....	.....	.....	11-16	11-16	.....	.....
Yel. Jacket	2⅞	2¾	2⅞	2¾	2⅜	2⅜	.....
.....	.....	.....	.....	.....	.....	.....	.....

Copper and Silver Stocks.

Reported by C. H. Smith, 15 Congress street, Boston, Stock Broker and Member of the Boston Mining and Stock Exchanges.

BOSTON, Jan. 19.

The market for copper stocks during the past week has ruled extremely dull, and prices as a rule are a shade lower. The quotations for ingot copper at 20½@20¾c. do not seem to affect the stock market so favorably as has been anticipated as yet; but there are those who confidently predict that higher prices must rule within the next sixty days, and are buying freely of the active sto ks. The movement has been so long delayed that the public generally have not much confidence in the advance, and are not investing largely in this class of securities. The silver stocks are almost entirely neglected; a few specialties are dealt in; but the market is literally a broker's market, and orders from outside sources are scarce. Calumet &.Hecla was very firm at $250, at one time touching $251; now selling at $244¼,ex dividend,$5. Quincy advanced to $56; but in the later dealings was lower, and sold to-day at $54½, closing $54 bid. Franklin dull at $14¼. Pewabic is steady at $16½@$17; there is not much offering, the stock being firmly held for higher prices. Osceola firm at $35@$34¾. Atlantic firm at $18¾@$19. Allouez sold at $3¼@$3⅝. Phœnix sold at $3@$3¾. National sold at $3¾@$3. Huron sold at $3¾. In Copper Falls there were small sales at $4, and Ridge also sold at $4. Copper Harbor is quoted at $4@$4⅞.

In silver stocks, Bonanza sold at $5 3-16@$5. San Pedro declined from 68¾@50c. Sullivan declined from $3@$2½. Harshaw is dull at $4@$4¼. Silver Islet is steady at $20.

At the Boston Mining and Stock Exchange, there has been considerable activity, confined, however, to two or three specialties. Empire (new stock) advanced to 70c., but the advance was not sustained, and the stock coming out freely caused a decline to 60c., from which it rallied to 65@66c. Milton was again placed on the list Monday, and has been quite largely dealt in; the opening price of 40c. was a little too high, and it dropped quickly to 30c., followed by a still further decline to 25c. It has since ruled firm at 26@29c. Sales aggregated over 60,000 shares. Mammoth advanced from 10@20c.; Twin Lead from 20@30c.

3 P.M.—The market this afternoon shows no material change, either in the volume of business or quotations. Franklin, $14 bid, $14¼ asked; Pewabic, sale of 20 shares at $16½; Quincy, $54½; Calumet & Hecla, $241 bid, $245 asked; Huron, $3¾@$4; Osceola, offered at $35; Silver Islet, $18@$20; Harshaw, $4@$4½; Ridge, $3½@$4.

Coal Stocks.

NEW YORK, Friday Evening, Jan. 20.

There has been an extremely active market for these stocks during the past week at prices that were rather inclined to weakness. Reading has been the principal feature of interest, the price weakening to $59¼ on sales of 187,570 shares. The weakness in the stock is attributed to the large sellings of the McCalmont party, which, by the election of last week, lost all active interest in the company. Delaware, Lackawanna & Western has been very active, the sales amounting to 220,300 shares at $126@$123¾@$125⅝. Delaware & Hudson records sales of 5790 shares at $107@$108. New Jersey Central has been fairly active and irregular; the sales amount to 88,800 shares at prices fluctuating between $97@$93½. There was a sale of 12 shares of Pennsylvania Coal at $245 on Monday, and another of 5 shares at $240 the day following, these being the only transactions in the stock. On sales of 800 shares, Consolidation Coal sold from $36¼@$34½.

At the second annual meeting of the stockholders of the Lehigh Valley Railroad Company, held January 17th, the annual report of the directors was submitted. The report shows a considerable increase in business. We quote from it as follows:

The coal tonnage for the past year was 5,870,701 tons. The income from all sources was $10,392,126; operating expenses, $4,648,083.78; net earnings, $5,744,042.22, against which interest, dividends, general expenses, and estimated accumulated depreciations amounting to $5,634.007.78 are charged, leaving a balance of $110,034.44. The company has sold to the Pennsylvania, New York Canal and Railroad Company a proportional amount of its investment in the stock of the Geneva, Ithaca & Sayre Railroad Company. The severe competition in freights by the trunk lines has seriously interfered with the receipts of the company from that source. The various interests of the company have united in establishing a transportation line on the lakes between Buffalo and Chicago. Two vessels are now owned by the company.

NON-DIVIDEND PAYING MINES.

NAME AND LOCATION OF COMPANY.		NUMBER OF SHARES.	Par.	ASSESSMENTS. Total levied to date.	Date and amount of last.		HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE. Jan. 14. H.	L.	Jan. 16. H.	L.	Jan. 17. H.	L.	Jan. 18. H.	L.	Jan. 19. H.	L.	Jan. 20. H.	L.
Albion, s. L	Nev.	150,000	100	330	Nov. 81	30	...	...	...	...	...	...	...	...	...	...	...	...
Allouez	Mich	...	...	...	...	...	...	...	...	...	...	...	3.40	...	...	...	...	...
Alta	Nev.	100,800	100	1,584,000	Dec. 81	50	...	...	...	...	...	...	...	...	...	...	...	...
Alta-Montana, G	Mon.	500 000	10	*	...	...	1.85	1.60	1.80	...	1.80	...	1.85	1.80	1.85	1.80	1.85	1.80
Am. Flag, s	Co o	125,000	10	*	...	...	...	...	11c	10c	...	...	...	...	...	...	...	...
Atlantic Copper	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bald Mountain, G	Colo	1,000,000	10	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barcelona, G	Nev	200,000	25	*	...	...	23c	20c	22c	20c	22c	20c	22c	21c	24c	21c	23c	21c
Battle Creek	Dak.	200,000	25	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bear Creek	Colo	30 0,000	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bechtel Con., G	Cal.	100,000	100	102,750	Dec. 81	25	...	...	...	...	...	...	...	...	...	...	57c	25c
Best & Belcher, G, s	Nev.	100,800	100	1,043,390	Jly. 81	50	7.25	...	8.00	...	8.00	7.75	7.50	...	...	...	7.88	...
Big Pittsburg, s L	Colo	200,000	100	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Black Jack, G	Cal.	100,000	2½	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bonanza Chief	Mon	1,000.000	1	*	...	...	...	...	...	...	...	...	...	...	...	...	52c	25c
Bondholder	Colo	200,000	2½	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Boston Con., G	Cal.	100,000	100	50,000	Sept.81	20	44c	42c	45c	42c	45c	41c	44c	41c	44c	41c	44c	41c
Boulder Con., S	Col.	200,000	10	...	...	...	9c	5c	6c	4c	6c	...	6c	5c	...	...	6c	...
Bradshaw, S	Ariz	225,000	10	...	...	...	60c	...	61c	57c	59c	57c	59c	55c	55c	47c	50c	47c
Buckeye	Colo	100,000	5	*	...	...	5c	...	...	...	4c	...	4c	...	...	...	...	...
Bull-Domingo, s L	Colo	200,000	50	*	...	...	45c	...	45c	...	45c	...	45c	...	...	...	42c	40c
Bullion, G. S	Nev.	100.000	100	3,682,000	Sept.81	81	8c	...	85c	...	...	...	...	...	...	...	...	...
Bye and Bye	Ariz	100,000	10	*	...	...	...	...	8c	7c	8c	...	9c	8c	8c	7c	7c	5c
Calaveras, G	Cal.	500,000	1	*	...	...	...	...	...	...	...	...	8c	...	...	...	11c	8c
C'lav'r's W.&M.Co	Cal.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cal., B. H., G	Dak.	100,000	100	400,000	Mar. 81	25	90c	...	1.00	90c	85c	...	...	...	10.50	25c	...	...
Carbonate Hill, s L	Colo	400,000	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Catskill, S	Nev.	300,000	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Central Ariz'na, S	Ariz	100.000	100	...	...	...	...	...	1.50	1.45	1.50	1.45	1.50	1.40	1 50	1.40	1.45	1.35
Chapparal	Cal.	...	...	...	...	...	5c	...	...	...	...	...	...	...	5c	...	5c	...
Cherokee, G	Cal.	150,000	10	...	...	...	55c	50c	56c	...	55c	50c	51c	50c	...	...	...	...
Cheyenne Con., G	Dak.	300,000	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clarence	Can.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colorado Cent'l, S	Colo	300,000	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Col'mb'a Con., G S	Nev.	100,000	50	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cons. Imp'ri'l, G S	Nev.	500,000	100	1,375,000	Aug. 81	10	4c	3c	4c	3c	...	...	...	...	...	...	3c	...
Con. Pacific, G	Cal.	60,000	100	114,000	Jly 81	40	15c	14c	15c	...	10c	...	10c	...	...	...	...	...
Con. Pay Rock, S	Colo	250,000	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Crescent, S L	Colo	300,000	10	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Crowell, G	N. C.	50 ,000	1	...	...	...	7c	6c	7c	6c	7c	6c	7c	6c	8c	7c	7c	5c
Dahlonega, G	Ga.	250,000	1	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dardanelles, G	Cal.	100,000	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dunderberg, S	Colo	150,000	10	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Durango, G	Dak.	500,000	1	*	...	...	...	...	9c	7c	10c	7c	20c	9c	25c	19c	25c	19c
Empire, S	Ut'h	100,000	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enterprise	Colo	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	64c	62c
Exchequer	Nev.	100,000	100	630,000	Sept.81	25	63c	62c	64c	62c	...	...	...	...	...	...	...	...
Globe Copper	Ariz.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glynn Dale Con. G	Cal.	100,000	100	75,000	Jan. 81	25	...	...	...	...	...	...	...	...	...	...	...	...
Gold Placer, G	Colo	200,000	25	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Goodshaw, G	Cal.	100,000	100	145,000	Feb. 81	15	...	...	30c	...	...	...	...	...	...	...	25c	...
Granville, G	N. C.	300,000	1	*	...	...	...	...	2c	...	...	...	2c	...	...	...	...	...
Harshaw, S	Ariz	100,000	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Head Center, S	Ariz	100,000	100	55,000	May 81	30	...	...	...	...	...	...	...	...	...	...	...	...
Hortense, S	Colo	200,000	10	...	...	...	20c	18c	...	...	...	...	19c	...	...	...	...	...
Index	Cal.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Julia, G S	Nev.	110,000	100	...	Sept.81	...	...	...	...	...	...	...	...	...	...	...	...	...
Kossuth, G S	Nev.	108,000	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lacrosse, G	Colo	100,000	10	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Legal Tender, S L	Colo	200,000	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Leviathan, S	Nev	100,000	100	350,000	Mar. 81	25	...	...	...	...	...	...	...	...	...	...	...	...
Lucerne, S	Colo	500,000	10	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malachite	Nev.	200,000	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mariposa Pref., G	Cal.	50,000	100	1,437,500	Dec. 81	...	...	...	...	...	...	...	...	...	...	...	...	...
" Com., G	Cal.	100,000	100	1.450,000	Dec. 81	...	2.75	...	3.25	3.00	2.80	2.00	2.05	2.00	2.05	...	2.50	2.25
May Belle, G	Cal.	100,000	100	106,000	Sept.81	30	...	...	...	...	10c	...	10c	...	...	...	...	...
Mayflower, S	Colo	100,000	100	*	...	...	...	...	20c	...	...	...	...	...	...	...	19c	...
Mexican, G. S	Nev.	100.800	100	1,600.800	Sept.81	81	10.25	...	10.25	...	10.00	9.38	9.63	...	9.25	...	10.00	...
Michoacan Synd.	Mex.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mineral Creek, S	Ariz	200,000	10	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Miner Boy, G S L	Colo	500,000	10	*	...	...	8c	7c	8c	7c	8c	7c	8c	7c	8c	7c	8c	6c
Miller	Nev.	200,000	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mono, G	Cal.	50,000	100	400,000	Dec. 81	50	...	...	...	...	...	...	...	...	...	...	...	...
Moose Silver, S	Colo	300,000	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nevada Syndi	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North Standard, G	Cal.	100,000	100	...	Nov. 81	10	...	...	...	...	...	...	...	...	...	...	...	...
North State	N. C.	400,000	25	*	...	...	...	...	...	...	...	...	11c	10c	...	...	11c	...
N. Horn-Silv'r, S L	Utah	400,000	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Noonday	Cal.	60,000	100	...	Jne 81	50	...	...	...	...	...	...	...	...	...	...	...	...
Old Dominion, C	Ariz	200,000	10	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oriental	Nev	200,000	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ori'nt'l & Miller, S	Nev.	400,000	25	...	...	...	35c	33c	35c	33c	35c	33c	35c	33c	34c	33c	34c	33c
Overman, G S	Nev.	115,200	100	3,460,700	July 81	50	...	...	...	...	...	...	...	...	...	...	...	...
Rappahannock, G	Va	250,000	1	*	...	...	20c	...	22c	20c	23c	21c	25c	22c	25c	23c	30c	25c
Red Elephant, S	Colo	500,000	10	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
San Pedro, G S L	N. M	400,000	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Silver Cliff, S	Colo	200,000	50	*	...	...	2.65	...	2.70	2 55	2.60	2.55	2.55	2.50	2.50	2.45	...	...
Silver Islet	Can.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Silver Nugget, S	Ariz	200,000	10	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Silv'r N, n'w stk, S	Ariz	250,0 0	10	...	...	...	12c	10c	11c	9c	9c	8c	8c	7c	9c	7c	10c	8c
Sonora Con	Mex.	...	...	...	...	...	...	...	14c	...	12c	...	...	...	12c	...	...	...
South Bodie, G	Cal.	100,000	100	85,000	Nov. 80	25	...	...	...	...	...	...	...	...	...	...	...	...
South Bulwer, G	Cal.	100,000	100	195,000	May 81	25	...	...	...	...	...	...	...	...	...	...	...	...
South Hite	Cal.	100,000	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South Pacific	Cal.	...	1	...	...	...	8c	...	...	...	9c	8c	6c	...	...	...	...	...
State Line No. 1, S	Nev.	200,000	25	...	...	...	7.00	6.50	7.38	6.88	7.63	7.13	8.25	7.25	8.25	7.63	7.50	4.00
" No. 2, S	Nev.	200,000	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" No. 3, S	Nev.	200,000	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" No. 4, S	Nev.	200,000	25	...	...	...	...	...	...	...	27c	...	...	...	...	...	...	...
" Nos. 1 & 4, S	Nev.	...	...	...	...	...	26c	22c	24c	22c	25c	23c	26c	22c	26c	23c	25c	22c
" Nos. 2 & 3, S	Nev.	...	...	...	...	...	1.55	1.25	1.45	1.30	1.45	1.25	1.40	1.25	1.40	1.25	1.40	1.25
Sutro Tunnel	Nev.	1,000,000	10	*	...	...	1.00	98c	1.05	1.00	1.05	98c	1.05	88c	1.10	1.00	1.05	1.00
Tabor Mine	Colo	250,000	20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Taylor Plumas	...	...	...	...	...	...	30c	25c	30c	29c	32c	28c	33c	29c	33c	20c	40c	34c
Tioga, G	Cal.	100,000	100	200,000	Aug. 81	30	12c	...	9c	...	...	...	...	...	9c	...	12c	...
Tuscarora, S	Nev.	100,000	100	95,000	Apr. 81	15	...	...	...	...	...	...	...	...	15c	...	...	...
Unadilla, S	Colo	500,000	1	...	...	...	...	...	12c	11c	12c	...	12c	...	12c	...	...	...
Union Cons, G. S	Nev.	100,000	100	1,160,000	Jly 81	81	...	...	11.50	...	...	...	...	...	...	...	...	...
Utah	Nev.	20,000	100	1,190,000	Aug. 81	2	...	...	...	...	...	...	...	...	...	...	...	...
Vandewater, S	Nev.	200,000	10	*	...	...	36c	35c	35c	34c	35c	34c	35c	34c	35c	33c	34c	33c
Washington, S	Ariz.	200,000	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Willshire, G	Cal.	50,000	1	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...

SALES.—Allouez, 200; Alta-Montana, 8110; American Flag, 200; Barcelona, 19,600; Bechtel Consolidated, 500; Belvidere, 2500; Best & Belcher, 1870; Bonanza Chief, 600; Boston Consolidated, 27,400; Boulder Consolidated, 18,700; Bradshaw, 16,500; Buckeye, 2200; Bull-Domingo, 4100; Bullion, 200; Bye-and-Bye, 10,000; Calaveras, 1100; Cal., B. H., 350; Catskill, 400; Central Arizona, 4400; Chapparal, 7500; Cherokee, 2800; Consolidated Imperial, 5100; Consolidated Pacific, 1700; Crowell, 12,450; Durango, 41,500; Enterprise, 4800; Goodshaw, 250; Granville, 900; Highland Chief, 300; Hortense, 300; Lucerne, 500; Mariposa, common, 3200; May Belle, 400; Mayflower, 400; Mexican, 720; Miner Boy, 38,100; North State, 1300; Oriental & Miller, 9500; Rappahannock, 25,750; Silver Cliff, 1925; Silver Nugget (new stock), 28,300; Sonora Consolidated, 1400; South Hite, 2200; South Pacific, 58,520; State Line No. 4, 100; Nos. 1 and 4, 21,900; Nos. 2 and 3, 187,300; Sutro Tunnel, 75,025; Taylor Plumas, 15,600; Tioga, 2100; Tuscarora, 200; Unadilla, 19,400; Union Consolidated, 90; Vandewater, 16,700. Non-dividend shares sold, 649,860. Total shares sold at all the Exchauges, 1,091,086.

The following officers were elected: President, Charles Hartshorne; Directors, David Thomas, Ashbel Welch, William L. Conyngham, Ario Pardee, William A. Ingham, George B. Markle, Robert H. Sayre, Harry E. Packer, James H. Blakeslee, Robert A. Packer, Elisha P. Wilbur, and Joseph Patterson.

BULLION MARKET.

NEW YORK, Friday Evening, Jan. 20.

BULLION PRODUCTION FOR 1881.

We give below a statement showing the latest bullion shipments. These are officially obtained from the companies, where that is possible; and where official statements can not be procured, we take the latest shipments published in those papers nearest to the mines reported. The table gives the amount shipped for the week up to the date given, as well as the aggregate shipments to such date, from the first of January, 1881.

The shipments of silver bullion are valued at $1.29·29 per ounce, Troy; gold at the standard $20.67 per ounce, Troy. The actual value of the silver in the following table is therefore subject to a discount, depending on the market price of silver. If the price of silver be counted at $1.12 per ounce, which has for some months been about its average value, the following figures, where they relate to silver bullion, should be diminished by about 13½ per cent to arrive at actual value.

MINES.	States.	For the week.	Month of December.	Year from Jan. 1st, 1881.
*Alice, G. S.	Mont.			$980,297
Barbee & Walker, S.	Utah.		$18,792	205,524
*Belle Isle, G. S.	Nev.		5,100	17,160
*†Big Pittsburg, S.	Colo.			57,949
*Black Bear, G.	Cal.			84,976
Bodie, G.	"		33,270	361,777
*Caledonia, G.	Nev.			101,974
California, G. S.	"			118,694
Caribou, S.	Colo.			121,991
*Castle Dome	Ariz.			197,259
*Christy, S.	Utah.			284,559
*†Chrysolite, S.	Colo.			849,255
Concordia, G.	Cal.			2,234
Connor, S.	Utah.		6,570	115,293
*Contention, G. S.	Ariz.		136,161	1,436,443
Con. Virginia, G. S.	Nev.			148,960
Crismon-Mammoth, G.	Utah.		6,966	67,420
*Custer, G. S.	Idaho.			800,675
*Deadwood-Terra, S.	Dak.		26,247	724,558
*Derbec, Blue Grav., G	Cal.			109,267
Eureka Con., G. S. L.	Nev.			1,393,618
Exchange Silver	"			44,400
Fresno Enterprise, G.	Cal.			9,600
*Grand Central	Ariz.			945,875
*Grand Prize, S.	Nev.			51,658
Hale & Norcross, G. S.	"			33,090
*Harshaw, S.	Ariz.			411,759
*Head Center	"			176,521
*Homestake, G.	Dak.		119,087	1,194,275
Horn-Silver, S. L.	Utah.		400,000	1,995,519
Idaho, G.	Cal.			546,100
*Independence, S.	Nev.		11,500	34,608
*Indian Queen, S	"			182,439
Iron Silver	Colo.			327,600
*Jocuistita, S.	Mex.			‡468,546
*†Little Chief, S. L.	Colo.			169,645
*Mack Morris	Ariz.			246,753
*Modoc	Cal.			34,704
Morning Star	Colo.			15,200
*Mount Potosi, G. S.	Nev.			74,319
*Navajo	"			128,124
New York & Arizona.	Ariz.			2,755
Noonday, G.	Cal.		23,980	238,820
Northern Belle, S.	Nev.		92,830	1,212,226
*Oneida, G.	Cal.			46,045
*Ontario, S.	Utah.			‡2,249,469
*Ophir, G. S.	Nev.		40,176	62,346
Pascoe, S.	Utah.		4,750	34,700
Rebellion	"			10,512
Richmond, S. L.	Nev.			672,135
Robinson Con., S.	Colo.			129,000
*Sierra Nevada, G. S.	Nev.			179,001
*Silver Bow, G. S.	Mont.		29,594	498,875
Silver Cliff	Colo.			26,925
Silver King, S.	Ariz.		74,400	616,083
Sonora Con. M. & M. Co	"			3,000
Standard, G.	Cal.		190,283	2,042,118
*Star, G.	Nev.			233,755
Stormont, S.	Utah.		28,147	265,658
*Sullivan, S. L.	Maine.			5,340
Syndicate, G.	Cal.			84,587
Tintic M. and M. Co.	Utah.			108,071
*Tip Top, S.	Ariz.			288,513
*Tombstone, G. S.	"		150,000‡	1,586,219
*Union Con., G. S.	Nev.			43,100
Vandewater	"			1,700
*Vizina, S.	Ariz.		41,618	524,895
Total amount of shipments to date				$26,536,466

* Official. † Net. *G. Gold.* *S. Silver.* *L. Lead.* ‡ Assay value.

Bullion Receipts at New York.—The bullion received from the mines at the various offices in this city during the week ended January 20th, as compiled from various sources, amounted to $422,764.03, as against $255,699.46 reported for the previous week. The receipts from January 1st, 1882, to date are $849,899.56.

Exports of Gold and Silver from New York.

Week ended January 14th	$109,300.00
Corresponding week last year	257,967.00
Since January 1st, 1882	337,539.00
Corresponding period last year	328,826.00

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate for discounts, and it remains at 5 per cent. During the week, the bank gained £288,000 bullion, and the proportion of its reserve to its liabilities was raised from 34 5-8 to 37 11-16 per cent, against 43 3-16 per cent at the same date in 1881.

The annual product of precious metals in the States and territories west of the Missouri River, including British Columbia, and the receipts at San Francisco from the west coast of Mexico, reported to Wells, Fargo & Co., are as follows: Gold, $31,869,686; silver, $45,077,829. California shows an increase in silver and a decrease in gold. Nevada shows a failing off. Utah, Colorado, and Arizona show an increase.

COAL STOCKS.

NAME OF COMPANY.	Capital Stock.	SHARES. No.	SHARES. Par Val.	Last Dividend. Mo.	Y.	R't.	Rate per Ann.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share. Jan. 14. H.	Jan. 14. L.	Jan. 16. H.	Jan. 16. L.	Jan. 17. H.	Jan. 17. L.	Jan. 18. H.	Jan. 18. L.	Jan. 19. H.	Jan. 19. L.	Jan. 20. H.	Jan. 20. L.	Sales from Jan. 13th to 19th inclusive.
	$		$				Per c'nt													
Am. Coal Co.	1,500,000	60,000	25	.....	..	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cameron C'l.	2,500,000	50,000	50	.....	..	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col. C. & I.	10,000,000	100,000	10	.....	..	....	...	45	43½	44	.....	.....	.....	.....	.....	44½	44½	.....	.....	3,000
Ches. & O. RR	15,000,000	150,000	100	.....	..	....	...	25½	.....	25½	.....	.....	.....	.....	.....	25¼	25½	.....	.....	559
Consol. Coal.	10,250,000	102,500	100	Jan.	82	2	...	36¼	34	36¾	36¾	34½	.....	34⅛	.....	.....	.....	.....	.....	800
Cumb. C. & I.	500,000	5,000	100	.....	..	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Del. & H. C.	20,000,000	200,000	100	Sept	81	1½	6	†	107¼	107⅜	107¼	107⅜	107	108⅛	107¼	108	107½	.....	.....	5,790
D., L. & W. RR	26 000,000	524,000	50	Dec.	81	2	8	126	124¾	125¼	123¾	125⅜	124¼	125⅜	124⅜	125⅜	124⅝	.....	.....	220,300
Lehigh C. & N	10,448,550	208,971	50	Nov.	81	3	5½	43¾	43⅝	43⅝	43¼	43⅛	43	43⅜	43⅛	.....	.....	.....	.....	5,593
Leh. V'y R. R.	27,042,900	540,858	50	Dec.	81	1½	6	63¼	.....	62¾	62½	62½	.....	63¼	62¾	62½	.....	.....	.....	1,837
Mary'd Coal	4,400,000	44,000	100	.....	76	1½	1½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montauk C'l.	2,500,000	25,000	100	.....	..	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morris & Es'x	15,000,000	300 000	50	Jan.	82	....	7	‡	123	122½	121½	122¾	.....	.....	.....	122½	122	.....	.....	756
New Cen. C'l	5,000,000	50,000	100	Dec.	81	....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
N. J. C. RR.	20,000,000	200,000	100	Oct.	76	2½	2½	97	93½	95⅞	94⅞	95	93½	95	94⅛	96¼	94½	.....	.....	88,807
Penn. Coal	5,000,000	100,000	50	.....	..	....	...	.....	.....	245	.....	240	.....	.....	.....	.....	.....	.....	.....	17
Penn. R. R.	68,870,200	1,337,404	50	Nov.	81	4	...	62⅝	62½	62⅝	62¼	6 ⅛	61¼	62⅛	62¼	62⅜	62¼	.....	.....	47,356
Ph. & R. RR*.	34,278,150	685,563	50	.....	86	2¼	10	67	61¾	62⅞	61	61¼	58⅝	61⅜	59½	60⅛	59¼	.....	.....	285,947
Spring Mt. C'l	1,500,000	30,000	50	Dec.	81	3½	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

† 107¾. ‡ 123¼. * Ex dividend. Total sales..... 658,825.
Of the sales of this stock 98,347 shares were in Philadelphia and 157,570 in New York.

PHILADELPHIA MINING STOCKS.

	Jan. 12. H.	Jan. 12. L.	Jan. 13. H.	Jan. 13. L.	Jan. 14. H.	Jan. 14. L.	Jan. 16. H.	Jan. 16. L.	Jan. 17. H.	Jan. 17. L.	Jan. 18. H.	Jan. 18. L.	Sales.
Alonzo	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Am. Con	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Argent	.42½	.40	.42½	.40	.40	.....	.40	.....	.40	.37½	.....	.....	6,750
Atlanta	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Aztec	.05	.04	.05	.04	.06	.05	.06	.....	.05	.....	.05	.....	31,500
Battle Mt.	.05	.....	.05	.....	.03	.05	.07	.05	.06	.05	.05	.....	72,100
B. Sulphuret	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Buena	.....	.....	.....	.....	.18	.....	.19	.18	.19	.17	.18	.....	8,900
Bunker Hill	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cincinnati	.....	.....	.27½	.....	.30	.27½	.27½	.....	.....	.....	.....	.....	1,400
Compromise	.35	.30	.37½	.....	.82½	.45	.80	.75	.75	.65	.72½	.67½	20,020
Con. Virginia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dauntless	.....	.....	.....	.....	.....	.....	.07	.05	.....	.....	.....	.....	200
Del Monte	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.04	.03	12,000
Den. City Con	.80	.75	.72½	.65	.72½	.70	.72½	.....	.70	.65	.65	.60	12,600
Eureka Con	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fairview Con	.03	.....	.03	.....	.03	.....	.03	.....	.....	.....	.03	.....	18,100
Flora Morrison	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Girard	1.45	1.40	1.45	1.40	1.50	1.45	1.50	1.42½	1.52½	1.42½	1.50	.....	8,600
Golconda	.04	.03	.04	.03	.05	.04	.05	.04	.....	.....	.03	.....	54,300
Golden Age Group	10	.09	.08	.07	.09	.08	.09	.08	.08	.07	.06	.....	12,300
Gov. Group	40	.35	.....	.....	.35	.....	.37½	.35	.....	.....	.....	.....	2,900
Grand Trunk	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand Union	.15	.12	.17	.14	.18	.16	.17	.14	.16	.13	.15	.12	117,700
Gun. Imp. Co	1.75	.....	1.70	.....	1.75	1.70	1.75	1.72½	1.80	.....	1.80	.....	3,000
Hancock	.03	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,000
Hibernia Con	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Homestake	.....	.....	.....	.....	.....	.....	.0[illegible]	.....	.....	.....	.....	.....	1,600
Iowa Gulch	.30	.....	.30	.....	.27½	.....	.32½	.27½	.30	.27½	.32½	.30	8,700
King Bullion	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Little Diamond	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Little Maud	.14	.13	.13	.....	.14	.13	.13	.....	.....	.....	.14	.13	12,200
Long & Derry	.06	.05	.05	.....	.....	.....	.....	.....	.06	.05	.06	.....	24,100
McCullough	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Monitor	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montana	.20	.....	.....	.....	.....	.....	.....	.....	.16	.....	.....	.....	100
Mt. Lincoln	.06	.....	.06	.....	.06	.....	.07	.05	.06	.....	.06	05	37,200
Mt. Sheridan	.10	.09	.....	.....	.....	.....	.11	.10	.11	.....	.12	.10	10,400
National	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.02	.....	1,000
Orion	.60	.52	.57½	.55	.55	.....	.57½	.55	.52½	.....	.52½	.....	7,350
Palmetto Ex.	.02	.....	.01	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,000
Pembina	.....	.....	.....	.....	.60	.....	.70	.62½	.60	.....	.75	.....	1,500
Penn Breck	.22	.....	.21	.....	.21	.....	.21	.....	.21	.....	.21	.....	6,900
Permanent	.03	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,000
Pizarro	.05	.04	.04	.....	.....	.....	.04	.....	.....	.....	.....	.....	76,200
Pizarro Exten.	.05	.....	.....	.....	.05	.....	.....	.....	.....	.....	.....	.....	800
Rara Avis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rara Avis Ex.	.....	.....	.....	.....	.....	.....	.14	.13	.13	.....	.13	.....	2,500
Rico Pioneer	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Pedro	.09	.08	.09	.08	.08	.....	.09	.....	.08	.07	.09	.07	37,900
Silver Cord	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver Plume	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver Rock	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sovereign	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Standard	.06	.05	.05	.04	.....	.....	.....	.....	.05	.04	.06	.04	19,300
Sultana	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sutro Tunnel	1.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500
Tombstone	4.50	4.47½	4.35	4.25	4.50	4.30	4.50	4.35	4.45	4.35	4.55	4.40	5,219
Tyrone	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.00	.....	100
Victor	.....	.....	.04	.....	.05	.....	06	.05	.05	.....	.....	.....	14,300
Western Ontario	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Western Union	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

METALS.

NEW YORK, Friday Evening, Jan. 20.

Metals show little change during the week. Consumers generally report a good business.

Copper.—There is little inquiry, and not much has been done. Manufacturers and dealers, being tolerably well supplied, do not show much anxiety to take copper at the present figures, which are stoutly maintained. We quote Lake 20½c. for cash and 21c. for future delivery. Since the flurry in London, caused by the advices of heavier shipments from Chili, the course of events there is watched with much interest. The latest cables are £69 10s. for Chili Bars. Best Selected has shown greater steadiness, the last figure by cable being £77 10s.

From London, Messrs. James & Shakspeare advise us by mail as follows:

Jan. 2d. Quite an extensive trade has taken place in Chili Bars, both Saturday and to-day, though business was somewhat impeded by the partial holiday observed here and on the continent. Buyers have absorbed all the spot g. o. bs. offering up to £71¼ usual cash terms, paying £71½ for one month's prompt, £72 for January, February arrivals, £72½ for three months' prompts. We note sales in favorite marks at £72¾, and in the best brands at £73, to arrive.

The Chili Charters, from 9th to 31st December, are advised as 4000 tons pure, of which 1600 tons Bars and Ingots; 1500 tons in Ores and Regulus for England, 900 tons Bars for France.

		1881. Tons.	1880. Tons.	1879. Tons.	1878. Tons.
Charters.	Jan. 1st to Dec. 31st	40,127	40,454	51,657	46,624
	Dec. only	5,600	2,854	3,553	2,12

Jan. 3d. Realization of profits on a few speculative holdings of Chili Bars has imparted a somewhat quieter tone to the market. We note sales of g. o. bs. from £71¼ usual cash terms, down to £70⅝ without brokerage and for sharp payment; also, some forward prompts at £71⅛ @£72. The closing prices for cash metals, with customary conditions, were £70¾@£71⅛.

Jan. 4th. Copper is still influenced by the holiday season, and the disposition shown to realize profits on a few speculative holdings. Some operations for a fall have also to be noted in sales of Chili Bars at £70 net, three months fixed prompt, with option to sellers to double the quantity. Cash parcels have changed hands from £70⅛ net and sharp cash to £70¾ usual terms; while stuff for delivery three months hence found takers at £71⅛@ £71⅞. The closing cash quotations were £70⅛@£70¾, customary conditions.

Jan. 5th. The reaction in value of Chili Bars has induced buyers to purchase more freely, and we note a good trade for the day, accompanied by a slight recovery in market prices. The business was confined to g. o. bs. which sold from £70¼@£70½ cash, £70⅝@£70¾ one month, £71¼@£71¾ three months, closing sellers at the top rates, buyers near. Favorite and best marks are scarce and quotations nominal, holders refusing to accept orders at a reduction from the quotations lately ruling.

Jan. 6th. The market has been quiet to-day, and transactions moderate; g. o. bs. of Chili Bars have sold at £70¼ and £70⅝ sharp or prompt cash; £70⅛ fourteen days; £70⅝ one month, partly net money, and these are still the ruling quotations. Advices from Valparaiso state that the telegram about Charters was erroneous, the quantity of ore and Regulus advised in "fine" being only 800 tons instead of 1500 tons, as previously given, thus reducing the total from 4000 tons to 3300 tons.

We are in receipt of the following statistics of copper in England and France, issued by Messrs. James & Shakspeare, of London:

		—December 1 to 31.— Imports. Tons.	Deliveries. Tons.	
Fine foreign, chiefly Australian		169	627	London.
Chili	Bars and Ingots	2,418	2,660	Liverpool and Swansea.
	In Ores and Regulus	Nil	605	
Precipitate and sundries		2,235	2,391	
Totals, England		4,822	6,223	
Fine foreign, chiefly American		535	482	France.
Chili Bars, Ingots, and Barilla		1,104	1,996	
Total		6,461	8,761	

		—Stocks.— Dec. 31. Tons.	Dec. 15. Tons.	Nov. 30. Tons.	
Fine foreign, chiefly Australian		8,312	8,420	8,770	London.
Chili	Bars & Ingots	24,330	23,517	24,572	Liverpool and Swansea.
	In Ores and Regulus	1,506	1,832	2,111	
Precipitate & sundries		1,158	1,253	1,314	
Totals, England		35,306	35,022	36,767	
Fine foreign, chiefly American		595	600	542	France.
Chili Bars, Ingots, and Barilla		2,842	2,838	3,734	
Total		38,743	38,460	41,043	

Advised by mail and telegram:

	Tons.	Tons.	Tons.
Chili	7,520	8,317	6,530
Australian	3,600	3,000	2,800
	49,863	49,777	50,373

		—Jan. 1 to Dec. 31.— 1881.	1880.	1879.
Imports	Chili	40,589	45,499	49,864
	Other foreign	35,888	33,865	39,843
Tons		76,477	79,364	89,707
Deliveries	Chili	50,890	43,328	44,397
	Other foreign	34,836	31,839	41,775
Total		85,726	75,167	86,172

Tin.—About 150 to 200 tons of tin changed hands for 25¼@25½c. spot, nothing being done in futures. The shipments from the Straits during the first fourteen days of January were 575 tons to this country, and 50 tons to England. The latest London cable quotations are £114 5s. for spot and £115 15s. for future, a large business being done. Singapore cables $35.25 and Penang $34.75, with exchange at 3s. 10d.

Our English mail advices, for which we are indebted to Messrs. James & Shakspeare, of London, are as follows:

Jan. 2d. The market is a trifle easier, with transactions down to 107¾s. sharp cash, 108s. fourteen days, 108½s. one month, 109¾s. three months.

Jan. 3d. Values are the same as yesterday, a moderate trade having been done at 107¾s. sharp cash, 108s. fourteen days, 108⅝s. one month, 109@109½s. three months, also some three months open, seller's option, at 107¾s. one day's, and 108s. fourteen days' notice.

Jan. 4th. Remains in the same position as yesterday, with a moderate trade doing at 107¾s.@107⅞s. sharp cash, 108s. fourteen days, 108½s. one month, 109¼@ 109½s. three months. Here also we note business in view of a decline in prices, transactions having taken place at 108s., for delivery any time during three months in seller's option by giving fourteen days' previous notice, and at 107½s. for delivery three months hence, sellers having power to tender double the quantity.

Jan. 5th. Opened with small transactions at 108¼s. fourteen days, 109⅜s. three months' prompt, but rapidly advanced to 109s. cash, which figure was also given with immediate payment. One month sold from 108½@109½s., delivery three weeks hence fetching 109⅝s., the market closing firm at the highest figures.

Jan. 6th. Tin without animation, and only a small business reported, at 108¾@109s. sharp cash; 109@109¼s. fourteen days; 110¼@110½ s. three months prompt.

Messrs. James & Shakspeare, of London, have favored us with the following valuable statistics of foreign tin, London and Holland:

	Dec. 1 to 31. Imports. Tons.	Deliveries. Tons.	Stocks. Dec. 31. Tons.	Nov. 30. Tons.	
Australian and Straits	2,169	1,043	6,646	5,520	London.
Banca (ex sale)	Nil.	316	847	1,163	Holland.
Billiton	191	341	834	984	
Australian	120	Nil.	120	Nil.	
Total	2,480	1,700	8,447	7,667	

		Tons.
Approximate quantity afloat	Australian	2,150
	Straits	1,800
	Billiton	1,800
	From America	160
		14,357

		1881.	1880.	1879.
Jan. 1 to Dec. 31.	Sales of Banca by Trading Co.	4,238	3,638	4,255
	Imports Billiton	3,074	4,178	3,904
	" Straits	5,771	2,613	4,129
	" Australian	9,111	9,227	7,380
	Totals brought to market	22,194	19,656	19,668
	Actual deliveries of foreign	23,826	21,133	21,430
	In transit: Straits and Australian	5,902	6,741	5,077

Tin Plates.—More business has been done and there is a stronger feeling, owing to advices from Liverpool which represent the market there as having a rising tendency.

We quote for large lines: Charcoal Tins, Melyn grade rates, for ⅛ cross assortments, $6.50@$6.62½; Allaway grade rates, for ⅛ cross assortments, $6.25; the above for IC, each additional X $1.50@$1.75. Charcoal Ternes, MF, 14×20, $7.75; Dean grade, 14×20, $5.70@$5.75; Dean grade, 20×28, $11.75@ $12; Allaway grade, IC, 14×20, $5.50; Allaway grade, IC, 20×28, $11.25@$11.50. Coke Tin, Osborne grade, IC, $6; Yspitty grade, IC, $5.80@ $5.87½; B. V. grade, IC, $5.65@$5.70. Coke Terne, Glais grade, IC, 14×20, $5.25; Glais grade, IC, 20× 28, $10.87@$11.

Lead.—In common lead a sale is reported of 325 tons at 4·90c. for April delivery; in refined we learn that a large business was done on the basis of 5·10c., details being withheld. The market closes quiet with common and refined at 5·05@5·12c. In the West, the market is dull. Freights from there are still low, being 15c. per 100 pounds. We are informed by Messrs. N. Corwith & Co., of Chicago, that no less than 28,500 tons of lead were distributed from that place in 1881.

Spelter and Zinc.—Spelter is unchanged, firm but quiet at 5⅞@6c.

Antimony.—There has been a steady demand at 13½c. for Hallett's, and 14½c. for Cookson's.

BOSTON MINING STOCKS.

	Jan. 12. H.	Jan. 12. L.	Jan. 13. H.	Jan. 13. L.	Jan. 14. H.	Jan. 14. L.	Jan. 16. H.	Jan. 16. L.	Jan. 17. H.	Jan. 17. L.	Jan. 18. H.	Jan. 18. L.	Sales.
Adrie Cons	1.22	.....	1.23	.....	1.23	.....	.....	.....	.....	.....	.....	.....	1,100
Allouez	.....	.....	3¼	.....	.....	.....	3¼	.....	3¼	.....	3⅜	3⅜	1,925
Ariz. Queen	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arnold	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Atlantic	.18½	.....	.18¾	.18½	.19	.....	.....	.....	.....	.....	.....	.....	375
Beacon Hill	1.25	1.23	1.24	1.23	1.23	.....	.....	.....	.....	.....	.....	.....	1,100
Blue Hill	.87½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
Bonanza Devel	5 3-16	.....	.....	.....	5 3-16	5⅛	5⅛	.....	5.00	.....	.....	.....	1,000
Boulder Con	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Breece	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brunswick Ant'y	12.00	.....	.....	.....	.....	.....	12.00	.....	.....	.....	.....	.....	90
California	.....	.....	.....	.....	.30	.....	.....	.....	.....	.....	.....	.....	100
Cal. & Hecla	250.00	.....	.....	.....	251.00	248.00	250.00	.....	.....	.....	245.00	.....	146
Carbonate Hill	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Catalpa	.42½	.....	.45	.....	.....	.....	.50	.....	.56¼	.....	.56¼	.....	1,200
Cedar Springs	.....	.....	.....	.....	.50	.....	.....	.....	.....	.....	.....	.....	500
Central	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Central Arizona	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Commonwealth Mica	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Columbus Gold	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Copper Falls	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	.....	50
Copper Harbor	4.00	3½	.....	.....	4¾	4 00	.....	.....	.....	.....	4⅝	.....	1,350
Copperopolis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crescent	.40	.....	.....	.....	.....	.....	.....	.....	.40	.....	.....	.....	800
Crystal Mica	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland	.59	.58	.59	.58	.58	.....	.....	.....	.....	.....	.....	.....	1,400
"Cusi"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dana	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Deer Isle	.30	.29	.....	.....	.32	.31	.....	.....	.....	.....	.....	.....	2,400
Douglass	1.25	.....	1.25	.....	1.25	.....	1⅛	.....	1⅛	1.00	.....	.....	1,000
Duncan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dunkin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Edgemoggin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Empire	.69	.61	.70	.60	.....	.....	.....	.....	.....	.....	.....	.....	3,550
Eureka Tunnel	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Franklin	15.00	.....	15.00	.....	.....	.....	.....	.....	14½	.....	.....	.....	360
Franklin Exten	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Galena Hill, pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gem	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Globe, pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Golden Development	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gouldsboro'	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Granger	.03	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500
Harshaw	4⅛	.....	4.00	.....	4.12½	4.00	.....	.....	4.00	.....	.....	.....	765
Hopewell Mang	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Huron	.....	.....	.....	.....	3¾	.....	.....	.....	.....	.....	.....	.....	100
Indian Queen	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mammoth Copper	.....	.....	.....	.....	.12	.....	.....	.....	.....	.....	.....	.....	100
Mascot	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mass. & N. Mex	.23	.....	.22	.21	.21	.....	.....	.....	.....	.....	.....	.....	3,500
Mendocino	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mesnard	.....	.....	.87½	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
Milton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Napa	.....	.....	7.00	.....	.....	.....	.....	.....	.....	.....	7.00	.....	200
National	.....	.....	3⅝	.....	.....	.....	.....	.....	.....	.....	.....	.....	200
No. Castine	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Orford Nickel	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Osceola	.35½	.....	35.00	.....	.....	.....	35.00	34¾	34¾	.....	.....	.....	131
Peabody	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pewabic	17.00	16⅞	16⅛	.....	17.00	16⅞	17.00	.....	.....	.....	.....	.....	585
Phœnix	3.00	.....	3.00	.....	.....	.....	2.75	.....	.....	.....	.....	.....	1,300
Pine Tree	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plymouth Gold	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Port & Sullivan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quincy	55¼	54½	56.00	55½	56½	55¾	55½	.....	55½	55¼	55.00	.....	625
Ridge	.....	.....	4.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
San Pedro	.68¾	.62½	.68¾	.50	.56¼	.50	.50	.....	.52½	.50	.....	.....	9,477
Silver Hill	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver Islet	20.00	.....	.....	.....	.....	.....	20.00	.....	.....	.....	20.00	.....	152
Silver Lake	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Simpson Gold	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Southern Belle	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Rite	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Star Copper	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sultan Mtn. Silver	.63	.....	.64	.....	.63	.....	.....	.....	.....	.....	.....	.....	600
Sullivan	2½	.....	3.00	.....	.....	.....	.....	.....	2.75	.....	2.50	.....	820
Sycamore	.60	.....	.70	.65	.....	.....	.....	.....	.....	.....	.....	.....	400
Titus Cons	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tremont Silver	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Twin Lead	.18	.....	.17	.15	.25	.24	.....	.....	.....	.....	.....	.....	4,700
War Eagle	.....	.....	.....	.....	.35	.....	.....	.....	.....	.....	.....	.....	100
W. Minnesota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Winthrop	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Young Hecla	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Jan. 20.

To the producers of iron, the situation is a very favorable one. They are enabled to dispose of all of their products at steadily improving values. There is not a great quantity of new business consummating, owing to the fact that there is not much domestic iron in stock, and engagements of shipping are so uncertain and give so much delay that but little can be done in that direction.

American Pig.—There are large demands from consumers on contracts previously made. In addition to this, there are other important demands, which some of the producers can not even consider, owing to the crowded condition of their order books. We learn of a sale of 1000 tons of Forge iron at $23½ at furnace, for February delivery. We also learn of a sale of 1500 tons of No. 2 Foundry iron on private terms, but said to be at full figures. We quote No. 1 Foundry at $27@$28; No. 2 Foundry, $25@$26; and Forge, $24½@$25.

Scotch Pig.—There is a fair business doing in this iron. The stocks here are exceedingly small and the prices very firm. We quote Gartsherrie in store at $27; Glengarnock in store $26, and to arrive $25½; Eglinton in store, $25½; Summerlee to arrive, 27½; and Coltness to arrive, $28½. The Glasgow market is steady. Freights for immediate or early shipment are not obtainable, while engagements have been made through May at $20@$21. English iron is quoted at $23 and Bessemer at $27½@$28.

Rails.—There is nothing doing in steel rails. In the absence of business, we quote as a week ago. There is a large inquiry for iron rails, but no business worthy of notice has been transacted. These are quoted at $48@$50 at our mills, and foreign $47 here.

Old Rails.—There is a very good business doing at higher prices. We note sales of 1800 tons of Ts in store, Philadelphia, at $31; 1000 tons, to arrive at Philadelphia, at $30@30.50; 500 tons, to arrive here, at $29.25. Sales of 500 tons of D. Hs. to arrive here are reported to have been sold at $32. In addition to the above, there has been a business of 2000@3000 tons of old rails for shipment from abroad on private terms. We quote Ts at $30 and D. Hs., $31½@$32.

Wrought Scrap.—We note sales of 1000 tons for shipment on private terms. We quote for shipment at $31@$31½, and from yard at $32@$32½.

We publish the following letters from our regular correspondents:

Louisville. Jan. 18.

[Specially reported by GEORGE H. HULL & Co.]

The market continues active and very firm; Hot Blast iron for immediate delivery is scarce, and $25 cash for No. 1 Neutral Mill has been established by actual sales of round lots. Car-Wheel irons are still dull and in good supply; there has been but little change in the price of Car-Wheel iron for six months back.

Milwaukee. Jan. 16.

[Specially reported by R. P. ELMORE & Co.]

The iron market is unchanged as to prices, although there seems to be a tendency toward better figures. Car-wheel and malleable irons are in good demand, and we have to report numerous sales. We still quote the last month's prices.

Pittsburg. Jan. 17.

[Specially reported by A. H. CHILDS.]

During the past week, the market has been quiet, but very firm. Desirable brands of pig-iron are well sold up, and holders show no disposition to sell for future deliveries at current rates. Foundry iron is scarce and in good demand. Quotations are:

	4 mos.		4 mos.
No. 1 F'dry	$27.00@$28.00	M. & White	$23.00@$24.00
No. 2 "	26.00@ 27.00	Cold Blast Ch.	35.00@ 41.00
Gray Forge	24.50@ 26.00	Hot Blast Ch.	30.00@ 34.00

St. Louis. Jan. 14.

[Specially reported by HOFFER, PLUMB & Co.]

Makers continue hopeful of a sustained higher market, and prices have been advanced some. The cost of making iron here is considerably increased, ores selling for from $6@$8 per ton, according to quality. We do not change our quotations, because of the varying prices asked, and in some instances paid. One dollar will cover the advance made on all the irons quoted.

HOT BLAST CHARCOAL.	
Missouri	$29.00@
Southern	29.00@
Ohio	31.00@$31.50
COKE AND COAL.	
Missouri	None offering.
Southern	$27.50@$29.00
Ohio	27.00@
MILL IRONS.	
Red short	$25.00@$26.00
Neutral	23.00@ 24.00
CAR-WHEEL AND MALLEABLE IRONS.	
Missouri	$28.00@$34.00
Southern	35.00@ 38 00
Ohio	32.00@ 43.00

Philadelphia. Jan. 20.

The demand for merchant iron is very heavy. The card is 2·8c., stores being nominally 2·9c. Higher prices are offered for prompt deliveries, and in some cases accommodations are effected. There is a tendency to three cent card rates. Only a moderate amount of business is possible, as the mills are engaged generally up to March 1st, and few care to extend engagements beyond that date, except under safe conditions. Iron is selling at above the card rate here and elsewhere, and a formal advance may be made if demand should become more active. More or less business is held in abeyance. The demand on the other side hardens prices here and disposes of the question of importations. Mills throughout the interior of the State are crowded with orders, and can not accommodate all. Manufacturers have made themselves measurably safe in pig-iron, and are now buying odd lots when opportunity offers. All crude iron is stronger than last week. No. 1 is held at $26@$27; No. 2, $25@$26; Gray Forge, $23.50@$25. These figures checked contemplated transactions this week. Furnace-men claim that the output is equal to all requirements; that there is no need of any anxiety or rush, labor and raw materials being steady. Yet they advance quotations and decline to meet requirements of customers beyond a peddling way, in view of a probable further advance which they desire to take advantage of.

Leading consumers acknowledge that the situation is unfavorable to them unless they seek redress in stronger prices, which, as a rule, they desire to avoid. English iron is firm but quiet. Importers make no promises. Scotch is strong and tending upward. Western consumers are inquiring for spring stock. Probabilities lean toward higher prices. A contract for 1000 tons structural iron will be placed on Saturday or Monday. Quotations are not weakening, as the mills are full of business. There are a multitude of small orders coming in which pay top quotations. Plate and tank iron is firm, and inquiries come along with encouraging regularity. Tank is quoted at 3½c.; Refined, 4c.; Shell, 4¼c.; Flange, 5c.; and Fire-box, 6c. Steel rails are quiet at $60 at mill; no sales are reported. Iron rails are firm at $48. Steel blooms are under negotiation. A more active inquiry exists for Bessemer pig, and one transaction of 11,000 tons is reported. Old rails are wanted, but for immediate delivery an advance of $1 was made since last week, and they are now $30.50; Doubles, $32. Nails are only moderately active at the advance. Spikes are firm and orders are abundant. Sheet-iron is wanted, and business is coming along freely.

COAL TRADE REVIEW.

Anthracite.

NEW YORK, Friday Evening, Jan. 20.

As we predicted in our last, the election of Mr. Gowen was promptly followed by a harmonizing of the coal interests. On the surface, but little appears to have been done; but we think that the curtailment which has been established for the last three days of this week will be extended until as nearly the actual wants are met as is usual even when harmony is said to be complete. The majority of the companies are willing to curtail during the last three days of next week, and those who have not consented to do so will be found willing to co-operate when the time comes. In fact, the outlook for harmonious action this year is more encouraging than it has been for a long time past. The Pennsylvania Railroad Company, which last year worked full time and paid no attention to the wishes of the other producers, is making important concessions this year, although not adopting in full the programme accepted by the others.

The continuance of the mild weather is very much reducing the consumption and demand for coal. It is too early to feel the good effect of the curtailment of production, so we are still compelled to notice considerable under-cutting of prices.

Although the statistical situation has been made worse since, it was very favorable at the end of the year. The stocks amounted to but 497,024 tons, an accumulation of 104,709 tons during the month, after producing the unusually large quantity of over 27,000,000 tons. Mr. John H. Jones makes the total shipments for the year 28,500,016 tons, an increase of 5,062,774 tons over 1880.

The press has given a great deal of attention to the affairs of the Reading Railroad Company, and especially its coal trade, during the past week. Most of the articles have conveyed alarm, without, we think, having any grounds for it. So far, Mr. Gowen has shown a strong disposition to do a profitable business on a strictly fair basis. As to his alliance with Mr. Vanderbilt, it will result in great advantage to the Reading Company by enlarging its business, and ultimately, if not immediately upon the completion of the proposed connections, it will be of great service to the coal trade; although, perhaps, it may for a time reduce the revenues of the trunk lines which are now carrying most of the anthracite coal to the West. It has only been a very few years since anthracite coal was a luxury in the West. During the ruinous competition of the coal war, prices became so low that they attracted the attention of coal dealers and consumers throughout all parts of the country, and, as a consequence, this coal was largely introduced into new markets. It gave such satisfaction that the railroad companies saw that quantities would be used if delivered to consumers at reasonable prices, and that a return business would be afforded to thousands of cars hauled to the West empty. The demand for coal has already developed to such an extent that the railroads have been unable to meet the transportation requirements,

FREIGHTS.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to Jan. 20th, 1882.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnston, South Amboy, Hoboken, and Weehawken.
Alexandria			
Annapolis			
Albany			
Baltimore			1.00
Bangor			1.75
Bath, Me			1.60
Beverly			1.60
Boston, Mass	2.25		1.50@1.60
Bristol			
Bridgeport, Conn.			.65
Brooklyn			
Cambridge, Mass.			
Cambridgeport			
Charleston	1.30		1.80
Charlestown			1.50
Chelsea			
City Point			
Com. Pt., Mass.			
E. Boston			1.50
East Cambridge			
E. Gr'nwich, R. I.			
Fall River			1.00
Galveston			
Georgetown, D.C.			
Gloucester			
Hartford			
Hackensack			1.00
Hudson			
Lynn			
Marblehead			
Medford			
Millville			
Milton			
Newark, N. J.			1.10
New Bedford			1.75
Newburyport			.65
New Haven			.90
New London			.75
Newbern			1.00
Newport			
New York			
Norfolk, Va			
Norwich			.65
Norwalk, Conn			¶ 1.10
Pawtucket			
Philadelphia			1.50
Portland			1.10
Portsmouth, Va.			1.75
Portsmouth, N.H.			1.00
Providence			1.60
Quincy Point			
Richmond, Va.			
Rockland			
Rockport			
Roxbury			
Saco			
Sag Harbor			1.50
Salem, Mass.			
Saugus			
Savannah			1.00
Somerset			
Staten Island			
Trenton			
Troy			
Wareham			
Washington			
Weymouth			
Williamsbg, N.Y.			
Wilmington, Del.			
Wilmington, N.C.			

* And discharging. † And discharging and towing. ‡ 3c. per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing. ** Below bridge

We learn of the following charters during the week: Philadelphia to Savannah, a schooner, 292 tons, $1.25, and a second, 400 tons, $1.30; bark with lumber, Philadelphia to Matanzas, Cuba, 500 tons, $1.

and it promises to far surpass the abilities of those roads now connected with the anthracite fields. The adding of the New York Central system to the carriers will probably no more than meet the requirements of the coal trade. If it does, it will result in a competition which will permit the coal to be delivered to the existing markets at a reduced rate, thereby increasing the consumption, while at the same time it will permit the extension of the markets. Taking this view of the situation, we think the coal trade, as a whole, should be congratulated.

Some Philadelphians show a false spirit of patriotism in regretting the competition of the New York Central Railroad with their pet monopoly, the Pennsylvania Railroad. All of the city's industries and commercial enterprises will certainly be benefited by the competition.

The production of anthracite coal last week was 584,014 tons, as compared with 371,288 tons the previous week, and 333,523 tons the corresponding week of 1881. The total production from January 1st to January 14th was 956,094 tons, as against 638,560 tons for the like period of 1881, showing an increase this year of 317,534 tons.

Bituminous.

There is a very fair amount of business doing in this class of fuel, and but little surplus coal is on the market. Nevertheless, with the characteristic weakness of this trade, prices are falling off. We quote now at $4.85@$5, although it has been hinted that a little less than our lower quotation has been quoted.

The steamship demand is large, and it is now an established fact that it will continue great during the first six months of this year, while all present indications point to its continuance throughout the whole year. There is nothing to indicate that any trouble will arise in this trade during the year from the demands of the miners for advanced wages.

The indications point to an arrangement with the Baltimore & Ohio Railroad for the equalization of freights, and higher prices for bituminous coal are prophesied. Those best informed say that annual contracts for the delivery of coal will probably not begin to be made in quantity before April.

It is said that the Pennsylvania Railroad will greatly increase its motive power during the year, and will thereby be enabled to make a much larger coal tonnage than last year.

STATISTICS OF COAL PRODUCTION.

The decrease in shipments of Cumberland Coal, over the Cumberland Branch and Cumberland & Pennsylvania railroads, amounts to 1322 tons, as compared with the corresponding period in 1881.

The shipments of Cumberland Coal, over the George's Creek & Cumberland RR., by the Maryland and the American Coal companies, for the week ended Jan. 14th, amounted to 5618 tons, and for the year from Jan. 1st, 10,395 tons.

The Production of Bituminous Coal for the week ended Jan. 14th was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2240 lbs	41,481	68,842
Barclay Region, Pa.		
Barclay RR., tons of 2240 lbs	8,817	14,910
Broad Top Region, Pa.		
Huntingdon & Broad Top RR	3,971	7,315
East Broad Top	2,335	3,989
Clearfield Region, Pa.		
Snow Shoe	2,777	5,140
Tyrone and Clearfield	50,634	88,970
Alleghany Region, Pa.		
Pennsylvania RR	9,532	15,772
Pittsburg Region Pa.		
West Penn RR	5,713	12,359
Southwest Penn. RR	510	1,103
Penn & Westmoreland gas-coal, Pa. RR	26,442	52,890
Pennsylvania RR	14,360	26,730

The Transportation of Coke over the Pennsylvania Railroad for the week ended Jan. 14th, and year from Jan 1st:

Tons of 2000 lbs.	Week.	Year.
Penn. RR. (Alleghany Region)	2,073	4,030
West Penn. RR	2,701	4,700
Southwest Penn. RR	34,245	68,774
Penn. & Westmoreland Region, Pa. RR	5,485	10,950
Pittsburg, Penn. RR	13,396	24,563
Snow Shoe (Clearfield Region)	787	1,385
Total	58,687	114,402

The Transportation of Coke over the Pennsylvania Railroad for the week ended Dec. 24th, and for the year 1881:

Tons of 2000 lbs.	Week.	Year.
Penn. RR. (Alleghany Region)	1,660	99,046
West Penn. RR	2,335	124,421
Southwest Penn. RR	27,891	1,421,373
Penn. & Westmoreland Region, Pa. RR	4,667	205,766
Pittsburg, Penn. RR	12,834	551,546
Snow Shoe (Clearfield Region)	285	13,260
Total	49,672	2,415,362

The Production of Bituminous Coal for the week ended Dec. 31st, and for the year 1881, was as follows:

Tons of 2000 pounds, unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2240 pounds	33,738	2,231,453
Barclay Region, Pa.		
Barclay RR., tons of 2240 pounds	6,972	418,207
Broad Top Region, Pa.		
Huntingdon & Broad Top RR	3,108	204,820
East Broad Top	1,527	85,768
Clearfield Region, Pa.		
Snow Shoe	5,896	128,263
Tyrone and Clearfield	30,252	2,382,621
Alleghany Region, Pa.		
Pennsylvania RR	8,281	301,707
Pittsburg Region, Pa.		
West Penn. RR	8,527	296,229
Southwest Penn. RR	618	29,548
Penn. & Westmoreland gas-coal, Pa. RR	21,263	982,293
Pennsylvania RR	14,006	689,483

Comparative statement of the production of anthracite coal for the week ended Jan. 14th and years from January 1st:

Tons of 2240 lbs.	1882. Week.	1882. Year.	1881 Week.	1881 Year.
Wyoming Region.				
D. & H. Canal Co.	81,778	131,109	43,479	83,413
D. L. & W. RR. Co.	87,952	158,452	53,075	104,330
Penn. Coal Co.	23,059	42,806	17,026	31,871
L. V. RR. Co.	48,358	66,810	10,449	12,207
P. & N. Y. RR. Co.	4,185	6,982	582	1,114
C. RR. of N. J.	44,903	64,800	29,725	66,032
	290,235	471,049	154,336	298,967
Lehigh Region.				
L. V. RR. Co.	93,927	163,475	60,457	161,062
C. RR. of N. J.	46,947	66,927	21,485	16,813
S. H. & W. B. RR.	172	523		
	141,046	230,925	81,942	159,717
Schuylkill Region.				
P. & R. RR. Co	129,718	215,311	86,780	161,062
Shamokin & Lykens Val.	21,609	36,502	9,262	16,813
	151,327	251,813	96,042	177,875
Sullivan Region.				
St Linc&Sul.RR.Co.	1,406	2,307	1,203	2,001
Total	584,014	956,094	333,523	638,560
Increase	250,491	317,534		
Decrease				

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Total same time in 1877	694,255 tons.
" " " 1878	774,488 "
" " " 1879	650,273 "
" " " 1880	838,679 "

Belvidere-Delaware Railroad Report for the week ending Jan. 14th:

	Week.	Year. 1882.	Year. 1881.
Coal for shipment at Coal Port (Trenton)			
Coal for shipment at South Amboy	17,949	32,251	18,489
Coal for distribution	15,043	26,583	23,760
Coal for company's use	2,490	4,181	4,884

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Full information can be obtained at the branch office of the company, No. 52 Broadway, New York City.

COLORADO: ITS GOLD AND SILVER Mines, Farms, and Stock Ranges, and Health and Pleasure Resorts in and near the Rocky Mountains. By Frank Fossett. Second Edition, 1880, $2. First Edition, 1879, $1.50. Address THE SCIENTIFIC PUBLISHING COMPANY, 27 Park Place, P.O. Box 1833, New York.

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	9	....	2.25	5.84	15.84	27.65	37.71	47.17
	12	1	3.00	7.46	20.04	34.70	47.03	60.00
	15	....	3.66	9.28	24.49	42.42	57.49	73 35
	18	1½	4.33	10.78	28.95	50.14	67.96	86.70
	21	....	5.00	12.44	33.41	57.86	78.42	100.05
	24	2	5.67	14.10	37.87	65.59	88.89	113.40
	27	....	6.26	15.58	41.85	72.48	98.23	125.32
	30	2½	6.86	17.07	45.83	79.38	107.58	137.25
¼ Column	33	....	7.45	18.55	49.81	86.28	116.93	149.17
	36	3	8.05	20.04	53.80	93.18	126.28	161.10
	39	....	8.58	21.37	57.38	99.38	134.68	171.82
	42	3½	9.12	22.70	60.97	105.58	143.09	182.55
	45	....	9.66	24.03	64.55	111.78	151.49	193.27
	48	4	10.20	25.37	68.14	117.99	159.90	204.00
	54	4½	11.17	27.79	74.64	129.27	175.19	223.50
	60	5	12.15	30.22	81.15	140.55	190.48	243.00
⅛ Column	66	5½	13.05	32.46	87.16	150.96	204.58	261.00
	72	6	13.95	34.70	93.18	161.37	218.69	279.00
	78	6½	14.84	36.81	98.84	171.17	231.97	295.95
	84	7	15.74	38.92	104.50	180.97	245.26	312.90
	90	7½	16.51	40.95	109.96	190.42	258.03	329.25
	96	8	17.28	42.99	115.42	199.87	270.81	345.61
¼ Page.	102	8½	18.09	45.01	120.85	209.28	283.55	361.75
	108	9	18.90	47.03	126 28	218.69	296.29	377.90
	114	9½	19.72	49.07	131.77	228.19	309.19	394.45
	120	10	20.55	51.12	137.26	237.70	322.15	411.00
⅛ Column	126	10½	21.41	53.26	143.02	247.68	335.67	428.25
or ½ Page.	132	11	22.27	55.41	148.78	257.67	349.19	445.51
½ Page.	....	....	35.76	88.95	238.87	413.70	560.65	715.27
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ROSSITER W. RAYMOND says of this book in the ENGINEERING AND MINING JOURNAL:

This book contains a selection from the articles which have appeared under the same title, during the last two years, in the columns of the *American Machinist*. The series is still going on, and no reader of that excellent journal wishes to have it brought to a close. For pithy wisdom and keen wit, applied to mechanical and technical topics, but couched in terms intelligible to all readers, it would be hard to find the equal of these sprightly, practical, discursive "Letters." Their lack of plan is even more apparent in book-form than in that of their original publication. They are the shop-talk of a shrewd observer and practitioner, and belong to the same class in literature with "The Autocrat of the Breakfast Table," or the various "Table Talks" of great men. Indeed, the author has consciously or unconsciously caught the spirit of Holmes's famous book, and employing in another field the same method, has produced a highly entertaining and instructive commentary upon the ways and work of machinists.

In examining this republication of the sayings we had already noticed occasionally at their former appearance, we have found ourselves, in the first place, led to read the book through, to our great amusement and profit; and in the second place, we have thought of a dozen persons to whom we would like to send it. Some of them are firemen; some are journeymen; some are young fellows with a hankering after machinery, and no very distinct idea of what the machinist's trade involves; some are graduates of technical schools, who need the plain talk which a book can give them without offense, and thus save them from hearing it less pleasantly from human lips; some are neither actually, perspectively, nor retrospectively machinists or mechanical engineers; but they know how to enjoy a clever satire, with a core of common sense, and therefore they would relish Chordal.

We do not mean to say that we agree with all the opinions expressed by Chordal. Why should we? He takes no special pains to agree with himself. At different times he presents different sides, with happy disregard of what he may have said earlier or may choose to say later. But what he does say is worth learning, laughing at, and then thinking over.

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LEADVILLE—MAP OF THE MINING Claims adjoining Leadville, California Mining District, Lake County, Colo. Carefully compiled and drawn from official surveys and records, by Edward Rollandet, 1879. Prices: In cloth-bound covers, $2; mounted on muslin, $2.50. Address P.O. Box 1833, New York.

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DIVIDENDS.

HORN-SILVER MINING COMPANY,
Office, 44 Wall Street.
NEW YORK, Jan. 14, 1882.

THE BOARD OF DIRECTORS HAVE THIS day declared a

DIVIDEND OF $300,000,

being three per cent on the capital stock, payable to the stockholders of record on the 15th of February, next, at the office of the company. Transfer-books will be closed on February 7th, and reopen February 16th.

W. S. HOYT, Secretary.

VIZINA CONSOLIDATED MINING COMPANY,
NEW YORK, Jan. 16, 1882.

DIVIDEND No. 5.

THE TRUSTEES HAVE DECLARED FROM the earnings the regular monthly dividend of TEN CENTS per share, or $20,000, payable at the office of the company, No. 30 Pine Street, on February 1st, 1882.

Transfer-books close January 26th, 3 P.M., and reopen February 2d, 1882.

JAMES AMM, Secretary.

DIVIDENDS SO FAR.

November 1st, 1881, regular dividend of 10 cents per share, or	$20,000
December 1st, 1881, regular dividend of 10 cents per share, or	20,000
January 3d, 1882, regular dividend of 10 cents per share, or	20,000
January 3d, 1882, extra dividend of 10 cents per share, or	20,000
February 1st, 1882, regular dividend of 10 cents per share, or	20,000
Total	$100,000

OFFICE OF COPPER QUEEN MINING COMPANY,
34 AND 36 THOMAS ST., NEW YORK, Dec. 15, 1881.

THE Board of Directors of this company have this day declared a monthly dividend (No. 7) of TWENTY-FIVE THOUSAND DOLLARS; also an extra dividend of TWENTY-FIVE THOUSAND DOLLARS, payable to stockholders of record on and after January 3d, 1882.

Transfer-books close December 29th, and reopen January 5th.

L. ZECKENDORF, Sec. and Treas.
A. A. HAYES, Jr., President.

NEW YORK, Dec. 31, 1881.

THE STANDARD CONSOLIDATED MINING COMPANY to-day declared its regular monthly dividend of

SEVENTY-FIVE CENTS PER SHARE,

payable January 12th, 1882, at the Farmers' Loan and Trust Co., 26 Exchange Place, New York.

Transfer-books close on January 4th, and open on January 13th.

M. R. COOK, Vice-President.

SAN FRANCISCO, Jan. 13, 1882.

THE FATHER DE SMET CONSOLIDATED Gold Mining Company has declared

DIVIDEND No. 17, OF TWENTY-FIVE CENTS PER SHARE,

payable at the office of Laidlaw & Co., 14 Wall street, February 1st.

Transfer-books will close on the 21st inst.

H. DEAS, Secretary.

DIVIDENDS.

OFFICE OF THE LA PLATA MINING AND Smelting Company, of Leadville, Colo., 58 Broadway, Rooms 12 and 13,

NEW YORK, Jan. 19, 1882.

DIVIDEND NO. 29.

The Board of Trustees have this day declared a dividend of SEVEN AND ONE HALF CENTS per share (par value $10) on the capital stock, payable on WEDNESDAY, February 1st, 1882, at the office of the company.

Transfer-books will close on Wednesday, January 25th, 1882, and reopen Thursday, February 2d, 1882.

Also an extra dividend of two and a half (2½) cents per share to stockholders of date of January 25th, 1882.

Statement of the financial condition of the company:

Working capital	$100,000.00
Dec. 1, 1881—Balance surplus account	64,503.98
Jan. 3, 1882—Net earnings for month of Dec.	20,410.63
	$184,914.61
Dividend of 7½ cents per share, 200,000 shares	$15,000.00
Extra dividend of 2½ cents per share, 200,000 shares	5,000.00—20,000.00
Balance Jan. 3, 1882	$164,914.61

D. OLYPHANT TALBOT, Asst.-Secretary.

OFFICE OF THE TOMBSTONE MILL AND MINING COMPANY, 432 Walnut Street, Philadelphia, December 31st, 1881.

TWENTY-SECOND DIVIDEND.

The Executive Committee of the Board of Directors of this company have this day declared the regular monthly dividend of $50,000; being TEN CENTS on each share of the capital stock of the company, payable on and after January 16th, at this office.

Transfer-books close on the 9th, and reopen on the 17th.

GEORGE BURNHAM, President.
W. J. CHEYNEY, Secretary.

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SPECIAL NOTICES.

PORTER, J. A.,

Mining Engineer,

DURANGO, COLORADO.

ASSESSMENT NOTICE.

NORTH STATE MINING COMPANY.—Notice is hereby given, that at a meeting of the Board of Directors, held on the 17th day of January, 1882, an assessment (No 1) of TEN (10) CENTS per share was levied upon the Capital Stock of the corporation, PAYABLE immediately in current funds to the Secretary at the office of the company in Salisbury, North Carolina, or AT THE BRANCH OFFICE, 52 BROADWAY, NEW YORK CITY.

Any stock upon which this assessment shall remain unpaid on the 16th day of February, 1882, will be delinquent, and will be advertised as delinquent, and unless payment is made, together with cost of advertising, before Thursday, the 9th day of March, 1882, will be forfeited to the company, together with all previous payments, according to the charter.

By order of the Board of Directors.
EDWIN H. MULFORD, Secretary.
Branch and Transfer Office, 52 Broadway, New York.

WANTED.—I desire to purchase fine MINERAL SPECIMENS from every mine in the United States. Address, "Specimen," Lock Box 904, Pittsburg, Pa.

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SEALED PROPOSALS FOR BUILDING 100 coke-ovens on Laurel Fork of Bluestone River, in Tazewell Co., Va., will be received until noon, January 15th, 1882. For blank forms, specifications, and drawings, apply at the office of the South West Virginia Improvement Co., 37 South 3d street, Philadelphia, or of the Supt. of Works, Abbs Valley, Tazewell Co., Va. Parties wishing to go to Abbs Valley can go to Lowell station, on Ches. & Ohio RR., or to Dublin or Wytheville, on Norfolk & Western RR., and thence by conveyance. The company reserves the right to reject any and all bids.

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